


MEMORANDUM

TO: Docket Control

FROM: Elijah O. Abinah 
Director
Utilities Division

DATE: October 29, 2019

RE: IN THE MATTER OF POSSIBLE MODIFICATIONS TO THE ARIZONA
CORPORATION COMMISSION'S RETAIL ELECTRIC COMPETITION
RULES (DOCKET NO. RE-00000A-18-0405)

SUBJECT: FIRST RETAIL ELECTRIC COMPETITION RESEARCH SUBMISSION

The attached report on Electric Competition contains a summary of findings to date regarding retail competition in other jurisdictions. Staff's research is ongoing. This interim report should be viewed as a work-in-progress.

The report is divided into two sections. The first section contains state-specific information, which includes the following for each state: a regulatory timeline, historical prices, and the description of a significant issue faced in the state, if applicable. The second section contains electric market information. Thus, the report is not intended to be read as a single narrative, but to be used as a reference representing a recapitulation of information available.

The report makes no determination on the value of retail competition, nor does it make any recommendations for or against restructuring the electric market in Arizona.

EOA:PWM:elr/PRP

Originator: Phillip Metzger

Attachments



Retail Electric Competition

- State Implementation Timeline
- Historical Retail Electric Rates

October 2019

Arizona Corporation Commission Staff

Phillip Metzger, Executive Consultant

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About the Report

This initial iteration of research on Electric Competition contains a summary of findings to date regarding retail competition in other jurisdictions. Staff's research is ongoing, and this interim report should be viewed as a work-in-progress.

The report is divided into two sections. The first section contains state-specific information, which includes the following for each state: a regulatory timeline, historical prices, and the description of a significant issue faced in the state, if applicable. The second section contains electric market information. Thus, the report is not intended to be read as a single narrative, but to be used as a reference representing a recapitulation of information available.

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The Rationale for Restructuring Electric Markets

In a similar vein to arguments heard in other deregulated industries, proponents of retail electric restructuring suggested that opening generation markets to competition would:

- lead to cost savings, especially to large industrial customers
- reduce volatility in electricity costs for commercial customers through the use of fixed price contracts
- shift the risk of capital-intensive generation investments from utility ratepayers to shareholders of the generation company
- lead to more innovative products and services for customers
- offer more renewable energy options to customers
- provide better customer service

Below is a compilation of state by state information discussing retail competition in states that have implemented retail competition. Information regarding the historical average prices of electricity by industrial, commercial, and residential classes is also shown.

Arizona

Timeline of Electric Competition in Arizona

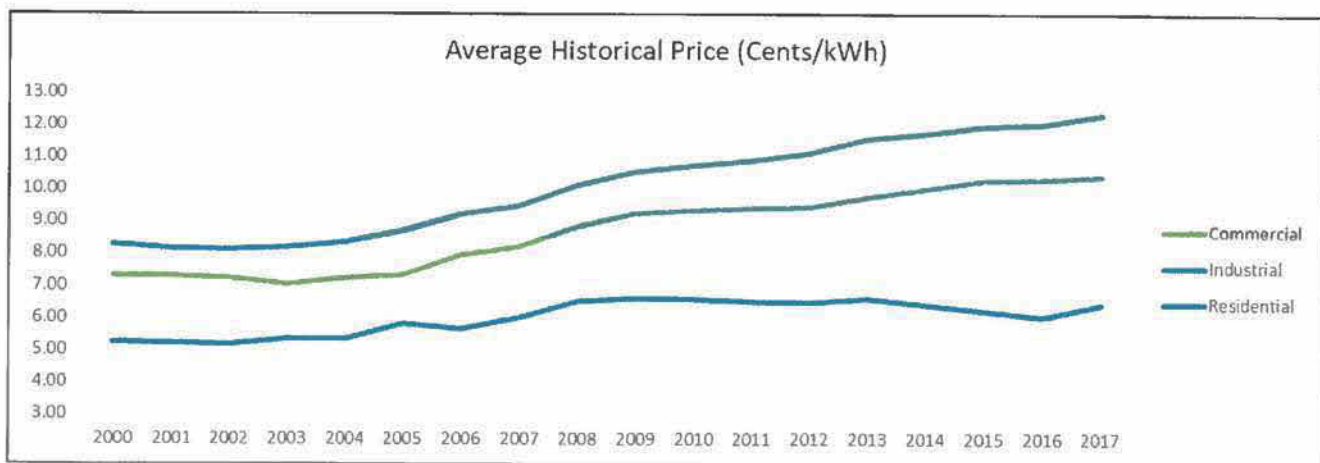
1994	<ul style="list-style-type: none"> On September 1, the Arizona Corporation Commission (ACC) holds its first workshop on retail electric competition.
1995	<ul style="list-style-type: none"> The ACC holds a series of nine working groups and task force meetings.
1996	<ul style="list-style-type: none"> The ACC begins drafting the first proposed Retail Electric Competition Rules. Additional workshops are held on August 12 and September 18. The ACC adopts the Retail Electric Competition Rules.¹
1997	<ul style="list-style-type: none"> The ACC orders that six working groups² be established to prepare the state for the commencement of competition in 1999.
1998	<ul style="list-style-type: none"> On June 22, the ACC issues the Stranded Cost Order. <ul style="list-style-type: none"> Utilities can choose between two methods for stranded cost recovery: the divestiture/auction method or the transition revenue method. On November 5, the ACC approves settlement agreements with Arizona Public Service (APS) and Tucson Electric Power (TEP). The Arizona Supreme Court issues an order staying the settlement proceedings and, on December 9, the parties withdraw the settlement agreements. The first CC&N is issued to an Electric Service Provider on December 23.
1999	<ul style="list-style-type: none"> At midnight on January 1, the Retail Electric Competition Rules go into effect, opening Arizona up to competition for electric service. On January 5, the ACC stays the Retail Electric Competition Rules and related decisions, including the decision on stranded cost. In April, the ACC amends the Retail Electric Competition Rules and the decision on stranded cost.

¹ A.A.C. R14-2-1601 through 1616.

² The working groups were: Stranded Cost Working Group, Unbundled Services and Standard Offer Working Group, Customer Selection Working Group, Reliability and Safety Working Group, Independent System Operator & Spot Market Development Working Group, and Legal Working Group.

	<ul style="list-style-type: none"> In October and November, the ACC approves new settlement agreements with APS and TEP, respectively.
2002	<ul style="list-style-type: none"> The Track A order halts the divestitures of APS and TEP and suspends the requirement in the rules that the utilities to purchase all their power in the competitive market.
2004	<ul style="list-style-type: none"> The Arizona Court of Appeals issues the Phelps Dodge decision, which invalidates a number of provisions of the Retail Electric Competition Rules and all the CC&Ns for competitive electric service that had been granted by the ACC. <ul style="list-style-type: none"> Some provisions in the rules are invalidated by the court because the ACC lacked legislative or constitutional authority to promulgate such provisions. Other provisions are invalidated because the ACC failed to seek review and certification from the Attorney General. Effectively halts the movement to restructure Arizona's retail electric industry and provide for retail electric competition.
2006	<ul style="list-style-type: none"> Sempra Energy Solutions applies for a CC&N to provide competitive retail electric service in Arizona.
2008	<ul style="list-style-type: none"> On September 3, Sempra's application is suspended pending a determination regarding whether the public interest would be served by authorizing the provision of competitive electric service to end users in Arizona.

Historical Prices in Arizona (2000-2017)³



³ (EIA n.d.)

Connecticut

Timeline of Electric Competition in Connecticut⁴

1995	<ul style="list-style-type: none">• The Connecticut Public Utilities Regulatory Authority (PURA) issues a final report supporting retail restructuring.
1998	<ul style="list-style-type: none">• On April 15, Connecticut HB 5005 passes, establishing retail restructuring and granting customer choice by July 1, 2000.• Rates to consumers are capped from July 1, 1998 to December 31, 1999 at rates in place on December 31, 1996.
2000	<ul style="list-style-type: none">• Beginning January 1, the current electric utilities are required to provide standard offer service to their customers.<ul style="list-style-type: none">◦ Standard offer rates must be at least 10% below rates in effect on December 31, 1996.• To receive recovery for stranded costs, companies must divest themselves of non-nuclear assets by January 1.
2001	<ul style="list-style-type: none">• CL&P (now Eversource) issues \$1.4 billion in recovery bonds for stranded cost recovery.• This was the result of a settlement after the PURA authorized \$1.5 billion and the Office of Consumer Counsel appealed the decision to the Supreme Court.⁵
2004	<ul style="list-style-type: none">• To receive recovery for stranded costs, companies must divest themselves of nuclear assets by January 1.

⁴ (Reishus Consulting, LLC 2015)

⁵ \$1 billion for out-of-market contracts with the remainder for debt reduction related to generation and other regulatory assets.

Historical Prices in Connecticut (2000-2017)⁶



The Rationale for Restructuring in Connecticut⁷

The General Assembly concluded that competition among electric generating companies is in the public interest and would benefit:

- the economy by bringing in new electric generating companies and new generating technology
- electric customers by providing them both choices and the opportunity for savings
- the environment by encouraging innovation in generation technologies that will improve air quality
- the environment by mandating conservation and the renewable portfolio standard

⁶ (EIA n.d.)

⁷ (Public Utilities Regulatory Authority 2000)

Georgia

Timeline of Electric Competition in Georgia⁸

1973

- The Georgia Territorial Electric Service Act passes.
 - Customers > 900 kW are given a one-time choice in their electric supplier.
 - Eligible customers may transfer from one supplier to another provided all parties agree.
 - The PSC must approve all requests for transfer of retail electric service.

Historical Prices in Georgia (2000-2017)⁹



⁸ (State of Georgia Public Service Commission n.d.)

⁹ (EIA n.d.)

Illinois

Timeline of Electric Competition in Illinois¹⁰

1997	<ul style="list-style-type: none"> • “Electric Service Customer Choice and Rate Relief Law of 1997” signed into law by Governor Edgar.
1998	<ul style="list-style-type: none"> • CIPS and UE form Ameren. • Alliant purchases Interstate Power. • ComEd closes Zion nuclear plant and sells State Line and Kincaid fossil plants. • First scheduled delivery service unbundled rate cases. <ul style="list-style-type: none"> ◦ Impacts only those customers who choose the delivery service option.
1999	<ul style="list-style-type: none"> • MidAmerican Energy merges with Cal Energy and is later acquired by Berkshire Hathaway. • IP sells Clinton nuclear plant and transfers fossil plants to affiliate. ComEd sells remaining fossil plants to Midwest Generation. • Certain large customers and multi-location customers are given the opportunity to choose an alternative supplier beginning October 1.
2000	<ul style="list-style-type: none"> • IP merges with Dynegy. • ComEd’s parent merges with PECO to form Exelon. • AmerenCIPS transfers all fossil plants to affiliate. • All non-residential customers given the opportunity to choose an alternative supplier.
2001	<ul style="list-style-type: none"> • ComEd transfers all nuclear plants to affiliate, Exelon Generation.
2002	<ul style="list-style-type: none"> • Transition Period extended from January 1, 2005 to January 1, 2007. • Ameren buys CILCO. • CILCO transfers fossil plants to Ameren affiliate. • Residential customers given the opportunity to choose an alternative supplier.
2004	<ul style="list-style-type: none"> • Ameren buys IP.
2006	<ul style="list-style-type: none"> • The Illinois Commerce Commission (ICC) approves the reverse auction method for the procurement of wholesale energy.
2007	<ul style="list-style-type: none"> • Transition period ends January 1. • New rates go into effect on January 2, reflecting the unbundled delivery service rates and auction results. • State Attorney General files complaint against wholesale suppliers for market manipulation.

¹⁰ (National Association of Regulatory Utility Commissioners n.d.)

	<ul style="list-style-type: none"> • The Illinois Power Agency Act offers \$1 billion in rate relief for customers.
2010	<ul style="list-style-type: none"> • Municipal aggregations are authorized where local governments aggregate load and solicit bids for the trading of electricity.

Historical Prices in Illinois (2000-2017)¹¹

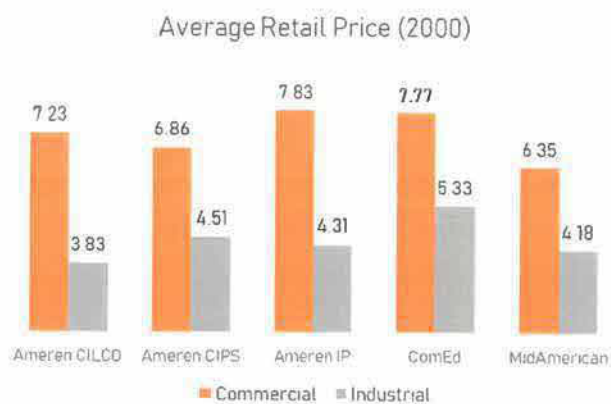


Participation Rates in the Illinois Competitive Market

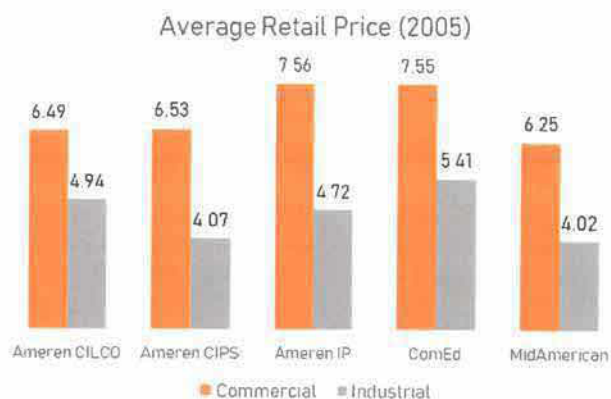
Illinois' experience with retail electric competition is unique. Unlike most states, it is shared by two regional transmission organizations. The Northern part of the state, including Chicago, is served by Commonwealth Edison (ComEd) within the PJM Interconnection, while the remainder of the state falls within Midcontinent ISO's (MISO) territory. There are three major investor-owned utilities that serve the state: ComEd, Ameren Illinois, and MidAmerican Energy.

¹¹ (EIA n.d.)

Illinois in 2000^{12 13}



Illinois in 2005^{14 15}



¹² (Energy Information Administration 2000)

¹³ (Illinois Commerce Commission April 2001)

¹⁴ (Illinois Commerce Commission May 2006)

¹⁵ (Energy Information Administration 2005)



Illinois' Competitive Transition Charge (CTC)¹⁸

Prior to competitive choice, electric utilities made investments and entered into long-term contracts that were not economically viable in a competitive market. These stranded costs would have been amortized and recovered as a component of the utility's per kwh electricity charge in tariffs approved by the Commission. The Competition Transition Charge was designed to allow the utility to recover these stranded costs in an accelerated manner as opposed to allowing them to continue to be recovered over the entirety of the amortization period. While prices would remain higher during the transition period than during full competition, limiting the length of the transition period was likely necessary for competition to develop in a timely manner.

All customers being served by the incumbent utility at the start of competition were required to pay the CTC charge whether they remain with the incumbent utility or switch to an electric service provider. Consequently, some customers that switched to an electric service provider may have paid higher total electricity costs than had they remained with the incumbent utility once CTC charges were added to their direct access contract cost of energy.

Component	Description
Bundled Base Rate	Average rate by customer class
Delivery Service Tariff (DST)	Published tariff rate by demand class for transmission and distribution services
Mitigation Factor	Guaranteed savings for customers
Market Value of Energy Component (MVEC)	Market value energy component

¹⁶ (Illinois Commerce Commission November 2009)

¹⁷ (Energy Information Administration 2008)

¹⁸ Based upon ComEd's Rate CTC filed with the ICC

Component	Description
Competitive Transition Charge (CTC)	Competitive transition charge for recovery of investments made prior to restructuring.

Calculation of the CTC

Bundled Base Rate – DST Rate – Mitigation Factor – MVEC = CTC

ABCs and Third-Party Marketers

There are several reasons why consumers, residential and small commercial customers, in particular, often pay higher rates when switching to a retail electric supplier. Many consumers choose to use an agent, broker, or consultant (ABC) to assist them with selecting the product and supplier that best fits their needs. Small commercial customers are frequently sole proprietorships or family businesses and do not have the time or expertise to navigate all their options. Moreover, many residential customers are first made aware these options exist when they are contacted by a third-party marketer. The use of an intermediary comes at a cost, as expected.

ABCs typically do not receive a commission directly from either the supplier, whose products they are marketing, nor the customer. Instead of the commission being in the form of a one-time fee, ABCs usually receive a volumetric commission—ranging from \$0.0005 to \$0.01 per kWh—built into the energy supply price the customer ultimately sees on their bill each month. Some third-party marketers do receive an incentive payment each time a customer signs a contract, but such an arrangement is usually limited to telemarketers or door-to-door residential sales through a marketing company operating on behalf of a single electric supplier. Many, if not most, consumers are unaware of these arrangements and, therefore, the total commission an ABC or marketer receives over the life of their contract.

The story of Ian Taylor, who described his experience to Crain's Chicago Business (Daniels, Inside the lives of the folks knocking on your door to sell you power 2018):

IMC' would pay "door-knockers" like Taylor \$25 per contract. But before paying out the commissions, the company would extract expenses for transportation and lodging, including flights and hotels as they moved salespeople across state lines and into unfamiliar markets....

Taylor worked 12-hour days, moving from Illinois to Pennsylvania to Ohio and back to Illinois, knocking on strangers' doors and selling them electricity. Hired by an obscure Forest Park company to sell on behalf of Liberty Power of Fort Lauderdale, Florida, Taylor says he eked out \$100 to \$200 most weeks, living often in hotels and other temporary lodging, with expenses taken from his sales commissions by his employer. When he wasn't in short-term lodging like hotels or Airbnbs, Taylor lived in 'frat houses' controlled by the company and home to an ever-changing band of salespeople.

This arrangement can be beneficial to all parties, but there is the potential for abuse, and there is a history of poor behavior by marketing companies operating on behalf of retail suppliers. As opposed to an ABC, which benefits from a long-term relationship with a client, a marketing company may only have a single contact with an individual customer—the day of the sale. As a result, much of the predatory behavior seen in every market is from the third-party marketing channel. Those operating under such arrangements have no connection to the energy supplier that will be serving the customer, as a result, these marketers have limited knowledge of the products they are offering and are typically paid in commissions only, which incentivizes overstated promises of electric savings and/or predatory behavior that will not become evident until the customer receives their first bill.

Maine

Timeline of Electric Competition in Maine¹⁹

1995	<ul style="list-style-type: none"> • Legislative Document (LD) 433, “An Act to Reduce the Cost of Electricity and Provide for Market Competition in the Production and Sales of Electricity,” fails in the state legislature. • LD 1502, “An Act Concerning Municipal Districts and the Development of a Competitive Energy Market,” also fails. • The legislature charges the Public Utilities Commission with a study of the electric utility industry.
1996	<ul style="list-style-type: none"> • In December, the PUC issues its plan requiring divestiture of generation assets and retail competition.
1997	<ul style="list-style-type: none"> • The legislature restructures the state’s electric industry by LD 1804. <ul style="list-style-type: none"> ◦ Requires each investor-owned electric utility after February 28, 2000 to sell rights to capacity and energy from all generation assets and generation-related business.
1998	<ul style="list-style-type: none"> • The legislature passes LD 1935, “An Act Regarding Electric Utilities,” and LD 2018, “An Act to Protect Customers of Consumer-Owned Utilities.” • A measure to provide electric customers with choice fails (LD 1732). • The legislature then passes LD 2285 for electric industry restructuring. <ul style="list-style-type: none"> ◦ The PUC must administer a bid process to select standard offer service providers and have the selections made by December 1, 1999.
1999	<ul style="list-style-type: none"> • LD 1214 authorizes the release of information to competitive service providers. • LD 1398 creates the Conservation Program Fund; requires energy resources plans to be delivered to the state’s legislature and governor; and coordinates energy policy among the New England states and various state agencies. • The legislature amends the Electric Restructuring Act.
2000	<ul style="list-style-type: none"> • Legislation passes that provides for the practical implementation of electric competition. <ul style="list-style-type: none"> ◦ LD 2428: “An Act to Make Certain Public Utility Commission Rules Routine Technical Rules” ◦ LD 2508: “An Act Relating to Electric Industry Restructuring” ◦ LD 2680: “An Act Concerning Certain Contracts Affected by Electric Industry Restructuring” • Stranded cost rates are set for 3 utilities effective March 1, for a two-year period. • In March, retail choice begins.
2001	<ul style="list-style-type: none"> • Legislation passes that develops marketing standards for competitive electric suppliers meant to prevent slamming.

¹⁹ (Maine State Legislature 2017)

2003	<ul style="list-style-type: none"> LD 1483 clarifies the PUC's ability to enforce state laws, rules, and requirements. <ul style="list-style-type: none"> Sets maximum administrative penalty at \$500,000 (or 5% of annual gross revenue, whichever is lower) for public utilities and competitive electric suppliers. Other violators are limited to \$25,000.
2004	<ul style="list-style-type: none"> LD 1741 clarifies the requirements imposed upon competitive electric suppliers.

Historical Prices in Maine (2000-2017)²⁰



²⁰ (EIA n.d.)

Maryland

Timeline of Electric Competition in Maryland

1999	<ul style="list-style-type: none">The Electric Customer Choice and Competition Act of 1999 is passed by the Maryland General Assembly and signed into law by Governor Parris Glendening.
2008	<ul style="list-style-type: none">The Public Service Commission finalizes the Purchase of Receivables (POR) rule.
2010	<ul style="list-style-type: none">The POR goes into full effect.

Historical Prices in Maryland (2000-2017)²¹



²¹ (EIA n.d.)

Participation Rates in Maryland^{22 23}

Much like Illinois, the data show a strong correlation between customer size and retail electric participation rates.



²² (Maryland Public Service Commission n.d.)

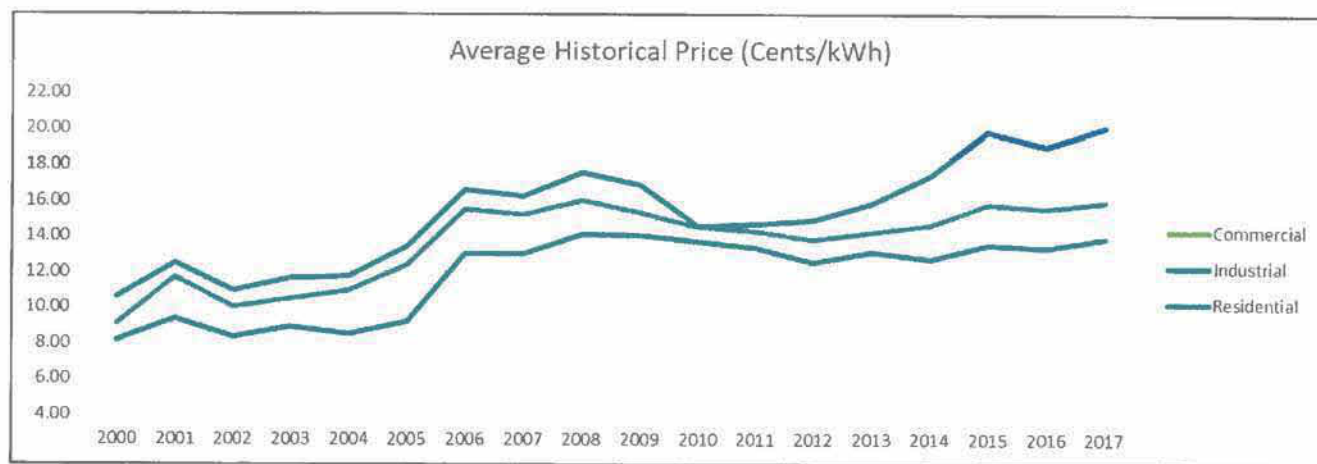
²³ SMECO, an electric cooperative in Southern Maryland, has been removed due to the lack of data prior to 2017 and a dearth switching customers.

Massachusetts

Timeline of Electric Competition in Massachusetts

1996	<ul style="list-style-type: none"> Three electric utilities begin retail choice pilot programs.
1997	<ul style="list-style-type: none"> The Department of Telecommunications and Energy issues an Order opening retail electric markets in 1998. On November 27, Governor Paul Cellucci signs HB 5117, requiring retail access by March 1998. Municipal utilities have the option to participate. The Independent System Operator-New England (ISO-NE) is established.
1998	<ul style="list-style-type: none"> Retail choice begins in March with a simultaneous 10 percent rate cut.
1999	<ul style="list-style-type: none"> An additional 5 percent rate cut goes into effect in September. Boston Electric/NSTAR receives \$725 million for its stranded costs.
2001	<ul style="list-style-type: none"> Western Mass Electric receives \$155 million for stranded cost recovery.
2005	<ul style="list-style-type: none"> Boston Electric/NSTAR receives an additional \$675 million for its stranded costs.

Historical Prices in Massachusetts (2000-2017)²⁴



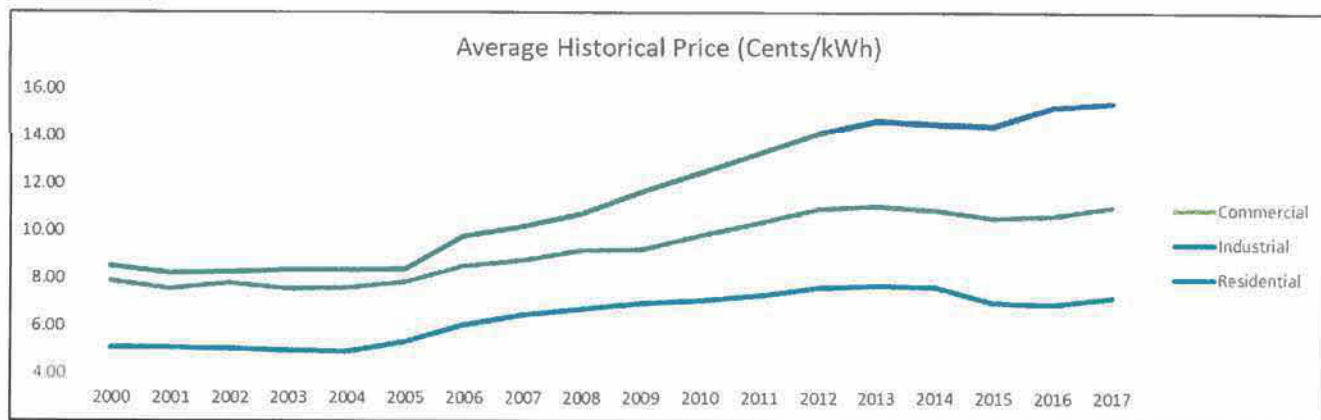
²⁴ (EIA n.d.)

Michigan

Timeline of Electric Competition in Michigan^{25 26}

1997	<ul style="list-style-type: none"> The first competitive supplier is granted approval to serve customers in October.
1999	<ul style="list-style-type: none"> The Michigan Supreme Court rules that the Commission does not have the statutory authority to mandate electric choice in June. DTE and Consumers voluntarily implement choice in September.
2000	<ul style="list-style-type: none"> Public Acts 141 and 142 are signed into law. <ul style="list-style-type: none"> PA 141 allows customers to purchase electric supply from an alternative energy supplier at market rates, requires regulated utilities divest transmission facilities or join an RTO/ISO, and lowers residential rates 5% and freezing any future increases until 2006. PA 142 allows Consumers and DTE to securitize stranded costs in bonds worth \$2.2 billion. In June, the Michigan Public Service Commission (MPSC) begins to develop the framework and guidelines for competition.
2008	<ul style="list-style-type: none"> Public Act 286 amends PA 141 and caps electric choice to 10% of the average weather-adjusted retail sales from the preceding year.

Historical Prices in Michigan (2000-2017)²⁷



²⁵ (Public Sector Consultants 2006)

²⁶ (Megginson 2010)

²⁷ (EIA n.d.)

Montana

Timeline of Electric Competition in Montana²⁸

1994	<ul style="list-style-type: none"> Montana Governor Marc Racicot signs the Electric Utility Industry Restructuring and Customer Choice Act.
1998	<ul style="list-style-type: none"> Industrial customers given retail access beginning in July. Price cap goes into effect July 1.
1999	<ul style="list-style-type: none"> Montana Power Company reorganizes as Touch America and sells 11 hydroelectric dams and two coal-fired power plants to PPL.
2001	<ul style="list-style-type: none"> The Legislature passes House Bill 474. <ul style="list-style-type: none"> The Montana Power Authority is created. Directs the Public Service Commission to set consumer rates to ensure full recovery of all prudently incurred costs by power suppliers. Delays the implementation of retail access for small commercial and residential customers from 2002 to July 2007.
2002	<ul style="list-style-type: none"> Price cap expires on June 31. Touch America sells electric transmission facilities to NorthWestern Energy. The Montana Electrical Deregulation Changes Referendum repeals House Bill 474.
2003	<ul style="list-style-type: none"> Touch America (formerly Montana Power Company) files for bankruptcy. NorthWestern Energy also files for Chapter 11 bankruptcy protection.
2004	<ul style="list-style-type: none"> NorthWestern Energy emerges from bankruptcy protection.
2007	<ul style="list-style-type: none"> Legislature passes Electric Utility Industry Generation Reintegration Act. <ul style="list-style-type: none"> Customers under 5 MW no longer granted electric choice. Allows NorthWestern Energy to vertically integrate.
2014	<ul style="list-style-type: none"> NorthWestern Energy purchases the hydroelectric dams sold to PPL as part of electric restructuring and becomes a fully-regulated utility.

²⁸ (Public Sector Consultants March 2014)

Historical Prices in Montana (2000-2017)²⁹



²⁹ (EIA n.d.)

New Hampshire

Timeline of Electric Competition in New Hampshire

1996	<ul style="list-style-type: none">New Hampshire is the first legislature to pass a bill enabling electric restructuring.
1997	<ul style="list-style-type: none">The Independent System Operator-New England (ISO-NE) is established.

Historical Prices in New Hampshire (2000-2017)³⁰



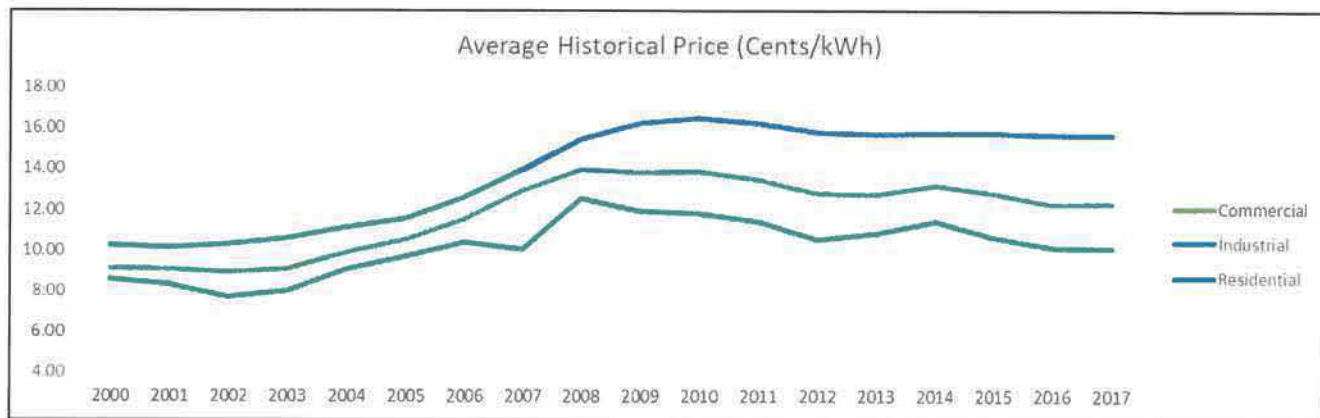
³⁰ (EIA n.d.)

New Jersey

Timeline of Electric Competition in New Jersey³¹

1999	<ul style="list-style-type: none"> The Electric Discount and Energy Competition Act (EDECA) passes. Beginning August 1, all customers granted access to retail competition. Electricity prices are capped at 10% below 1999 prices. <ul style="list-style-type: none"> Suppliers have little opportunity to make a profit, limiting participation.
2003	<ul style="list-style-type: none"> Rate cap expires.
2007	<ul style="list-style-type: none"> Participation remains below 2%.
2010	<ul style="list-style-type: none"> Residential participation increases from less than 1% to almost 10%.
2011	<ul style="list-style-type: none"> Legislature passes Long-term Capacity Agreement Pilot Program (LCAPP) <ul style="list-style-type: none"> Promotes development of approximately 2,000 MW of generation facilities.
2012	<ul style="list-style-type: none"> Two of the proposed LCAPP generating facilities clear the PJM Base Residual Auction price; one does not.

Historical Prices in New Jersey (2000-2017)³²



³¹ (Public Sector Consultants March 2014)

³² (EIA n.d.)

New York

Timeline of Electric Competition in New York³³

1996	<ul style="list-style-type: none">• The New York Public Service Commission passes the Competitive Opportunities Case legislation.<ul style="list-style-type: none">◦ Sets a goal of a competitive wholesale market by 1997 and competitive retail market by 1998.
1998	<ul style="list-style-type: none">• The Power Pick pilot program goes into effect.• Orange & Rockland offers retail choice to its first customers on May 1.• ConEdison begins to implement choice in June.• Rochester Gas & Electric (RG&E) opens up retail choice to 10% of its customers in July.• New York State Electric and Gas (NYSEG) offers choice to small industrials in August.• National Grid also begins to offer choice to its customers.
1999	<ul style="list-style-type: none">• Orange & Rockland is again first in offering retail choice to all customers on May 1.• NYSEG offers all customers retail choice and divests from its coal plants in August.
2000	<ul style="list-style-type: none">• National Grid completes retail choice on January 1.
2001	<ul style="list-style-type: none">• All customers of Central Hudson Gas & Electric and RG&E are granted choice in July.• ConEdison offers all of its customers retail choice in December and implements a goal of reducing NYC fossil fuel generation by the end of 2002.
2003	<ul style="list-style-type: none">• All customers of Long Island Power Authority (now PSE&G Long Island) are granted choice in January.• Another large blackout hits New York City.

³³ (Selectra n.d.)

Historical Prices in New York (2000-2017)³⁴



³⁴ (EIA n.d.)

Ohio

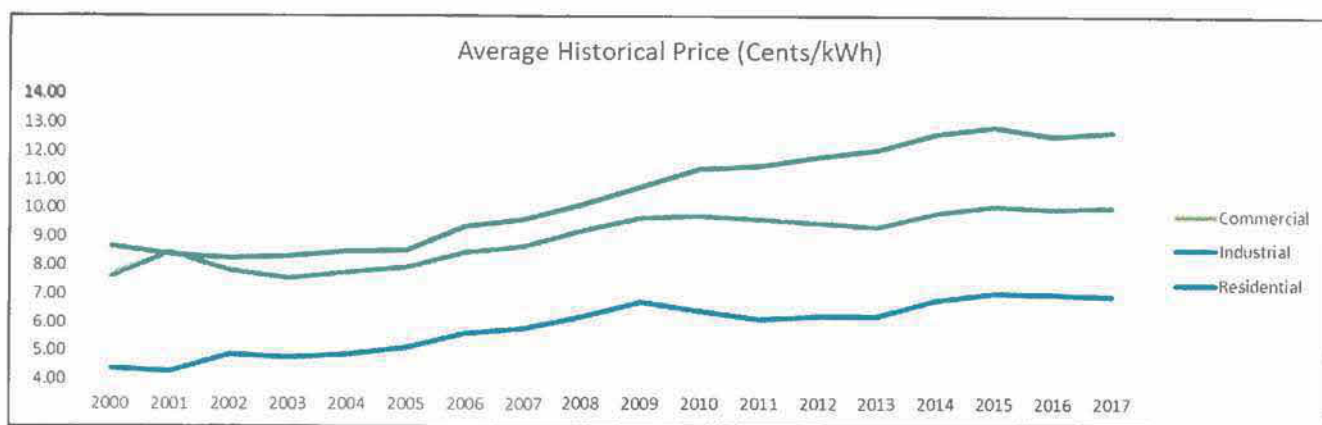
Timeline of Electric Competition in Ohio^{35 36}

1999	<ul style="list-style-type: none">• The Ohio Electric Restructuring Act (SB 3) passes.• PUCO issues initial rules, including provisions for recovery of stranded costs.
2000	<ul style="list-style-type: none">• PUCO adopts transition plans.
2001	<ul style="list-style-type: none">• Electric choice begins on January 1.• An electric rate freeze begins.
2002	<ul style="list-style-type: none">• PUCO begins approving Rate Stabilization Plans.
2004	<ul style="list-style-type: none">• FirstEnergy conducts wholesale electric bid process to determine electric costs.
2005	<ul style="list-style-type: none">• Electric rate freeze ends.• Recovery of generation stranded costs ends on December 31.
2006	<ul style="list-style-type: none">• Rate Stabilization Plans take effect.
2008	<ul style="list-style-type: none">• Senate Bill 221 authorizes the restructuring of the electric markets.<ul style="list-style-type: none">◦ The law requires electric utilities to file an Electric Security Plan or a Market Rate Option to supply energy to customers.• PUCO approves its first ESP.• Rate Stabilization Plans expire at the end of the year.
2010	<ul style="list-style-type: none">• Recovery of regulatory stranded costs ends on December 31.
2012	<ul style="list-style-type: none">• PUCO begins an investigation into the electric market.
2014	<ul style="list-style-type: none">• PUCO's investigation concludes that competition cannot be effective in a partially deregulated electric market.

³⁵ (Choueiki October 20-24, 2014)

³⁶ (Public Sector Consultants 2016)

Historical Prices in Ohio (2000-2017)³⁷



PUCO vs. FERC^{38 39}

Like many other competitive states, the issue of capacity and aging power plants has been the most pressing issue in Ohio. These aging baseload plants have a difficult time competing with low-cost natural gas and renewables in the PJM electricity market. If left to market forces, these baseload plants would likely be forced to retire. Under these conditions, FirstEnergy (and later AEP) argued before PUCO that without PPAs, its Davis-Besse nuclear plant or coal-fired Sammis plant may not survive.

PUCO unanimously approved the use of these PPAs in an effort to preserve future rate stability, fuel diversity, and grid reliability, but had the effect of also protecting the companies from competition. For such protections to be legal, the companies relied on a waiver of federal rules forbidding affiliated companies from doing business within one another, which FERC gave them in 2008. Without this waiver, the plants' subsidiary companies could not have competed in wholesale auctions to supply power to the local distribution companies.

How the PPAs were designed

Instead of selling into the regional wholesale power market, the power would have been sold—at cost—to their LDCs, which would in turn immediately bid it into the daily and hourly wholesale auctions supplying power to the East Coast. If the LDCs lost money selling power into the interstate markets, an increase in delivery charges would recover the losses.

³⁷ (EIA n.d.)

³⁸ (Bade, Re-regulation on the horizon? State plant subsidies point to looming 'crisis' in organized power markets 2016)

³⁹ (Funk, FERC rejects PUCO-approved FirstEnergy, AEP power deals 2019)

On April 27, 2016, FERC ruled that it alone has the authority to determine whether the agreements would protect customers and meet federal standards requiring market competition. The waiver was rescinded, and the companies were ordered to submit the plans for FERC review.

Six months later, PUCO approved a distribution modernization rider for FirstEnergy, which went into effect in 2017. In June 2019, the Ohio Supreme Court rejected the use of the distribution modernization rider, which collected \$168 million to \$204 million each year.⁴⁰ The following month, the Ohio legislature passed HB 6, which will give FirstEnergy roughly \$150 million annually for seven years, beginning 2021, to subsidize its two nuclear power plants in Ohio.⁴¹

FirstEnergy filed for bankruptcy protection in 2018 and is seeking to free itself from union contracts.

⁴⁰ (Walton 2019)

⁴¹ (Funk, FirstEnergy Solutions' bankruptcy plan hits snag as judge presses utility to resolve union contracts 2019)

Oregon

Timeline of Electric Competition in Oregon

1999

- Senate Bill 11479 is signed into law in July, requiring Portland General Electric and PacifiCorp to offer their customers energy options.
 - Utilities not required to divest their generation assets.
 - Residential and commercial customers less than 30 kW receive a portfolio of options from the utilities.
 - Customers at or above 30 kW can purchase electricity from a retail supplier.

Historical Prices in Oregon (2000-2017)⁴²



⁴² (EIA n.d.)

Pennsylvania

Timeline of Electric Competition in Pennsylvania

1994	<ul style="list-style-type: none"> The Pennsylvania Public Utilities Commission publishes the Report and Recommendation on Electric Competition.
1996	<ul style="list-style-type: none"> The Electricity Generation Customer Choice and Competition Act is passed by the Pennsylvania State Assembly.
1997	<ul style="list-style-type: none"> Utility companies are required to submit restructuring plans by September.
1998	<ul style="list-style-type: none"> Retail choice begins on July 1. <ul style="list-style-type: none"> 1.1 million customers sign up in the first week.
1999	<ul style="list-style-type: none"> 1/3 of electric customers are given the ability to choose a competitive supplier.
2000	<ul style="list-style-type: none"> Another 1/3 of electric customers are given the ability to choose a competitive supplier.
2001	<ul style="list-style-type: none"> All remaining electric customers are given the ability to choose a competitive supplier.

Historical Prices in Pennsylvania (2000-2017)⁴³



The Rationale for Restructuring in Pennsylvania

From House Bill 1509:

⁴³ (EIA n.d.)

1. Over the past 20 years, the federal government and state government have introduced competition in several industries that previously had been regulated as natural monopolies.
2. Many state governments are implementing or studying policies that would create a competitive market for the generation of electricity.
3. Because of advances in electric generation technology and federal initiatives to encourage greater competition in the wholesale electric market, it is now in the public interest to permit retail customers to obtain direct access to a competitive generation market as long as safe and affordable transmission and distribution is available at levels of reliability that are currently enjoyed by the citizens and businesses of this Commonwealth.
4. Rates for electricity in this commonwealth are on average higher than the national average, and significant differences exist among the rates of Pennsylvania electric utilities.
5. Competitive market forces are more effective than economic regulation in controlling the cost of generating electricity.⁴⁴

Polar Vortex of 2014⁴⁵

In January 2, 2014, a disturbance in the stratosphere caused winds to reverse direction and developed into a polar vortex where pockets of cold Arctic air in the troposphere moved across the northern United States. The temperature contrast between the Arctic air and the mild temperatures in the United States caused strengthening storm systems to move across the continent. These storms brought large amounts of snowfall, record low temperatures 20-40 degrees below average, and skyrocketing energy commodity prices. PJM experienced 8 of the 10 highest winter electric demand days in its history and an all-time peak of 141,312 MW on January 7. To stabilize the grid, PJM utilized older, inefficient plants, which were relatively expensive, and these generators would need to be paid.

Facing these extra costs, FirstEnergy Solutions (FES), the unregulated subsidiary of FirstEnergy Corp., planned a one-time \$5-\$15 surcharge on 2.7 million of its customers' June 2014 bills to cover the costs it incurred when purchasing energy from PJM during the polar vortex. While none of FirstEnergy's many regulated customers would be faced with the surcharges, many of these retail customers were under fixed-price agreements. After PUCO opened an investigation into whether retail suppliers could pass on charges to customers in fixed-price contracts, FES decided it would not pass on the charges to residential customers. Its commercial and industrial customers were eventually billed 1-3% of their annual electric generation costs through the surcharge. A FES web page dedicated to the charge offered this explanation:

During this period of extreme temperatures, significant increases in energy consumption and emergency operations, PJM incurred extremely high ancillary costs to purchase additional reserve generation needed to keep the bulk electric system reliable. These costs and additional charges were, in turn, invoiced by PJM to all suppliers serving customers throughout the region.

⁴⁴ General Assembly of Pennsylvania HB 1509 (1995)

⁴⁵ (FirstEnergy Solutions' 'polar vortex' surcharge now showing up in commercial customer bills 2019)

Pursuant to your agreement with FirstEnergy Solutions, these additional costs and charges are deemed a “Pass-Through Event.” This provision in the contract is intended to protect the customer and allow FirstEnergy Solutions the flexibility to respond to extraordinary, unpredictable and unforeseen events. As a result, electric generation costs for the month of January will be adjusted through a charge which will appear as a separate line item on your bill but will not change your contract price.⁴⁶

Polar Vortex of 2014: Enforcement Actions⁴⁷

The Office of Attorney General and Office of Consumer Advocate brought enforcement proceedings against five retail energy suppliers in the summer of 2014. All but one case was settled between December 2015 and August 2016.

The Pennsylvania Public Utility Commission sought \$14,780,000 against HIKO Energy, LLC for failing to bill customers at the 1% -7% below the Price to Compare rate promised in its disclosure statement. The ALJ issued a decision recommending a penalty of \$1,836,125.⁴⁸ In another trial, the ALJ recommended a penalty of \$2,554,000 against Blue Pilot Energy for slamming and deceptive marketing. These penalties were significantly higher than any the PUC had previously sought to impose. Moreover, the lawsuits clarified the PUC’s authority in many ways:

- The PUC has the authority to direct refunds.
- Class action proceedings cannot be brought in the PUC. Retail electric suppliers could potentially pay twice to settle the same violations, through proceedings at the commission and, again, through a class action.
- The PUC cannot regulate retail energy supply prices. Although there was testimony that the variable prices charged were in excess of reasonable market rates, the PUC could not limit the factors considered in setting a variable price.

The Polar Vortex Settlement Template

1. Refunds to variable rate customers (\$2 million to \$7 million)
2. Contributions to hardship funds for low-income customers (\$25,000 to \$75,000)
3. The cost of a third-party settlement administrator (\$25,000 to \$100,000)
4. Civil penalty (\$25,000 to \$125,000)
5. Commitment to improved customer service practices, training, and monitoring of company employees, contractors, or third-party marketers.
6. Revisions to contract and marketing materials
7. Ban from offering variable rate products (15 to 24 months)

As a direct result of the polar vortex of 2014, the PUC developed a new regulation regarding variable rate products that the disclosure statement “must clearly and conspicuously state that there is not a limit on how much the price may change from one billing cycle to the next.”⁴⁹ Retail electric

⁴⁶ (Knox 2014)

⁴⁷ (Gentile 2017)

⁴⁸ 14,689 invoice violations at \$125 per violation

⁴⁹ 52 Pa. Code § 54.5(c)(2)(ii)(B).

suppliers now must provide two notices to the customer prior to changing the terms of a residential or small commercial customer's contract. The Initial Notice must be issued 45-60 days before the change in terms of the contract or expiration, followed by an Options Notice, detailing the options available to the customer, that must be issued no less than 30 days before the change in terms of the contract or expiration. Lastly, retail electric suppliers are required to provide a variable rate customer, upon request, the last 12 months' average monthly billed prices in the customer's service territory.

Rhode Island

Timeline of Electric Competition in Rhode Island

1997

- Rhode Island is the first state to officially implement electric restructuring.
 - Transition charges are set at 2.8 cents per kWh for the period July 1997 to December 2000.
- The Independent System Operator-New England (ISO-NE) is established.

Historical Prices in Rhode Island (2000-2017)⁵⁰



The Rationale for Restructuring in Rhode Island

Rhode Island's Utility Restructuring Act of 1996 states the following goals for restructuring the electric markets in the state:

1. Lower retail electricity rates would promote the state's economy and the health and general welfare of the citizens of Rhode Island
2. Current research and experience indicate that greater competition in the electricity industry would result in a decrease in electricity rates over time.
3. Greater competition in the electricity industry would stimulate economic growth.
4. It is in the public interest to promote competition in the electricity industry and to establish performance-based ratemaking for regulated utilities.
5. In connection with the transition to a more competitive electric utility industry, public utilities should have a reasonable opportunity to recover transitional

⁵⁰ (EIA n.d.)

costs associated with commitments prudently incurred in the past pursuant to their legal obligations to provide reliable electric service at reasonable costs.

6. It shall be the policy of the state to encourage, through all feasible means and measures, states where fossil-fueled electric generating units producing air emissions affecting Rhode Island air quality are located to reduce such emissions over time to levels that enable cost effective attainment of environmental standards within Rhode Island.
7. In a restructured electrical industry, the same protections currently afforded to low income customers shall continue.⁵¹

⁵¹ New Hampshire HB 8124, the Utility Restructuring Act of 1996, Chapter 316 96H, revision to Title 39-1-1(a)3(d)

Texas

Timeline of Electric Competition in Texas⁵²

1970	<ul style="list-style-type: none"> ERCOT is formed.
1996	<ul style="list-style-type: none"> ERCOT is established as an ISO.
1999	<ul style="list-style-type: none"> Texas Governor George W. Bush signs Senate Bill 7 (SB 7) into law on June 18, 1999. Rate freeze for utilities goes into effect on September 1.
2000	<ul style="list-style-type: none"> An administrative law judge's ruling calculates TXU Electric's stranded costs at -\$1.45 billion.
2001	<ul style="list-style-type: none"> PUCT allows new electric providers to begin signing up customers for the pilot project on February 15. On July 31, the pilot project officially starts. That day, prices that had remained between \$10 and \$45 per MWh spiked to \$1,000 per MWh. On August 2-4, incorrect projections by ERCOT causes wholesale prices to appear to be \$15,000 per MWh when the cost was closer to \$1. On August 8, the balancing energy price spikes to \$10,000 per MWh, but was adjusted down to \$1,000 due to regulatory price caps. On August 9, a computer failure at ERCOT causes the wholesale market to go down for four hours. Austin Energy, a municipal utility not deregulated, receives errors on ERCOT-generated bills. The largest error is \$90 million. A settlement is reached that calculates TXU Electric's stranded costs at \$0. PUCT orders generators to refund ratepayers through Excess Mitigation Credits. Rate freeze for utilities ends on December 31.
2002	<ul style="list-style-type: none"> Full deregulation begins on January 1. Utilities are required to charge prices 6% below the regulated rate that existed on December 31. This rate was known as the "Price to Beat." PUCT interprets that SB 7 has no provision that allows the Price to Beat to decrease. <ul style="list-style-type: none"> As a result, the price paid by most customers only went up, and never down, for several years. TXU files for its first Price-to-Beat rate increase on April 23. PUCT approves the rate increase of up to 10% in some regions.

⁵² (Dyer 2009)

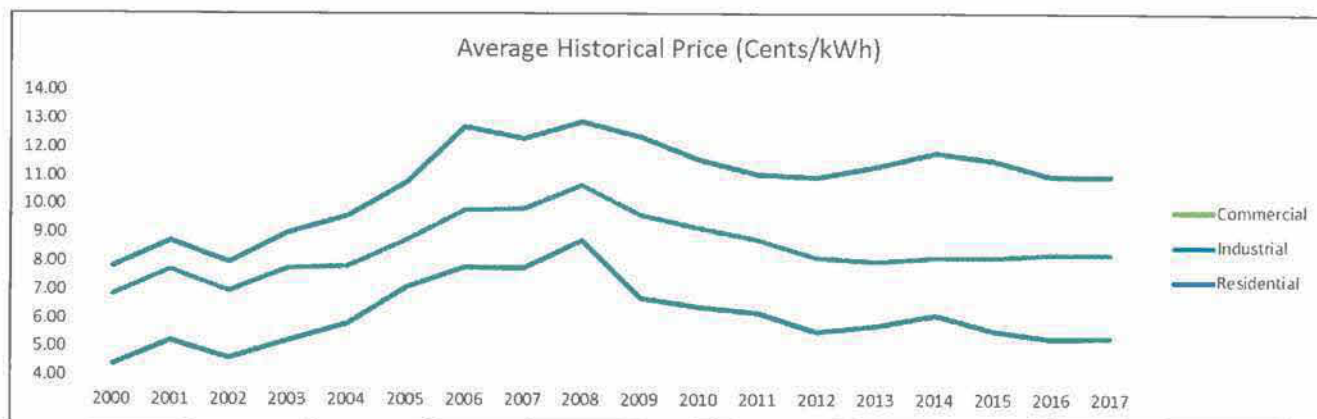
	<ul style="list-style-type: none"> • A PUCT investigation finds that six companies had manipulated the market and earned \$29 million in illegitimate revenue by projecting incorrect energy needs: TXU, Constellation Power, Mirant Americas, Reliant Energy, AEP, and Enron. • New Power, with nearly 80,000 customers, files for bankruptcy protection on June 10.
2003	<ul style="list-style-type: none"> • A portion of the System Benefit Fund, authorized to provide assistance to lower electric bills for low-income residents, was appropriated to balance the state budget. • TXU files for a Price-to-Beat rate increase of 12%. • PUCT approves nodal market system. It is expected to be implemented Fall of 2006. • PUCT receives 31,000 complaints regarding electric service for the fiscal year.
2004	<ul style="list-style-type: none"> • In November, PUCT determines that ratepayers owe CenterPoint \$2.3 billion in stranded costs. • PUCT requires ratepayers to refund the value of all Excess Mitigation Credits (over \$2 billion).
2005	<ul style="list-style-type: none"> • The remainder of the System Benefit Fund is appropriated by the legislature. • A grand jury indicts six former ERCOT managers.
2006	<ul style="list-style-type: none"> • The nodal market system implementation is postponed until 2008 and is expected to cost \$311 million. • Price-to-Beat rate ends on December 31.
2007	<ul style="list-style-type: none"> • PUCT recommends \$210 million in fines for TXU's market power abuses. • Lawmakers appropriate approximately \$170 million for the System Benefit Fund.
2008	<ul style="list-style-type: none"> • Price spikes cause some retail electric providers to fail. <ul style="list-style-type: none"> ◦ This causes their customers onto POLR rates, which doubles or triples prices on some of their bills. One of these customers is a co-author of SB 7. • Luminant (formerly TXU) agrees to pay a \$15 million penalty for alleged abuses in the wholesale market. • The nodal market system implementation is postponed until 2010 and is estimated to cost \$660 million. • The first municipal aggregation (opt-in) fails. • The Third Court of Appeals rules against PUCT regarding the order refunding the Excess Mitigation Credits.
2010	<ul style="list-style-type: none"> • The nodal market goes live on December 1. The total cost to ratepayers is \$584.4 million, and ERCOT seeks recovery of \$544.7 million through the nodal surcharge.⁵³
2011	<ul style="list-style-type: none"> • Cold weather and unplanned generation outages cause rolling power outages in February.

⁵³ \$544.7 million to be recovered through the nodal surcharge + \$39.7 million previously funded through the System Administration Fee. (Electric Reliability Council of Texas July 2, 2012)

2012

- The total stranded costs recovered by all previously regulated utilities amount to \$9.5 billion.⁵⁴

Historical Prices in Texas (2000-2017)⁵⁵



Current Price Data⁵⁶

Texas is a mature market and price data from all 162 electric suppliers shows a convergence in the prices paid by consumers in recent years. Using a weighted average helped to reduce the impact of extreme price values paid by a relatively small number of consumers.

Energy Supplier	Weighted Average Cost (Cents/kWh) in 2017
Retail Electric Providers	11.20
Investor-Owned Utilities	11.15
Cooperatives	10.93
Municipalities	10.94

Characteristics of the Texas Market

When it comes to deregulation of electric markets, Texas is unique.

- Mandatory participation.
- No capacity markets.

⁵⁴ All amounts securitized including the amount authorized in the TXU settlement. TNMP's stranded costs, not securitized, are also included. (Public Sector Consultants March 2014)

⁵⁵ (EIA n.d.)

⁵⁶ (EIA n.d.)

- Designated Provider of Last Resort (POLR).
- No statewide net-metering policy.
- One cooperative opted to deregulate (Nueces Electric Cooperative).
- ERCOT is the only regional transmission organization not subject to FERC jurisdiction.
- The highest electricity consumption of any state, the highest energy production, and the highest CO₂ emissions.

Texas Model POLR

Unlike most territories, the Provider of Last Resort is not the local distribution company in the area where the service is located. The Public Utility Commission of Texas (PUCT) designates retail electric providers for each utility service area that is open to competition. As PUCT's website makes clear, "POLR service is relatively high-priced, due to the costs associated with planning and the risk of serving an uncertain number of customers with uncertain electricity." As a result, "loads this service is intended to be temporary and used only under rare circumstances when a REP is unable to provide service or when a customer requests POLR service."⁵⁷

Non-Volunteer Provider of Last Resort (2019 – 2020 Term)⁵⁸

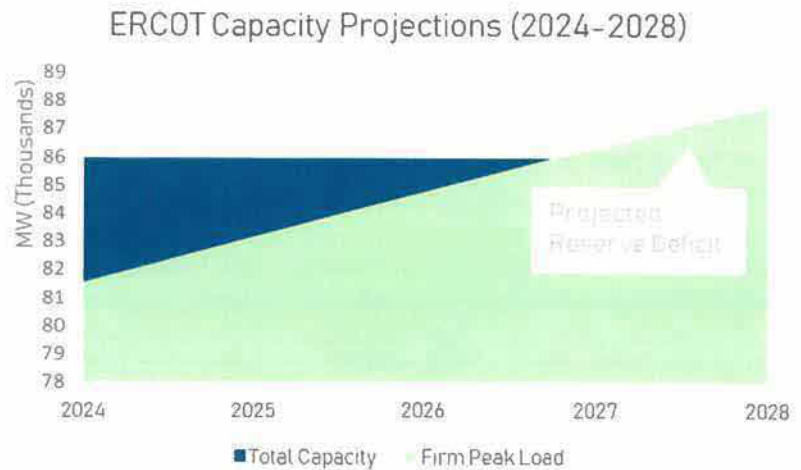
Area	Residential	Small Non-Residential	Medium Non-Residential	Large Non-Residential
Oncor	TXU Energy	TXU Energy	Reliant Energy	TXU Energy
CenterPoint	Reliant Energy	TXU Energy	Reliant Energy	EDF Energy
AEP Texas Central	CPL Energy	TXU Energy	Direct Energy	Reliant Energy
AEP Texas North	TXU Energy	TXU Energy	TXU Energy	Reliant Energy
TNMP	TXU Energy	TXU Energy	Reliant Energy	Reliant Energy

⁵⁷ (Public Utility Commission of Texas n.d.)

⁵⁸ (Public Utility Commission of Texas n.d.)

Energy Emergency Alerts⁵⁹

On August 13, 2019, and again two days later, ERCOT issued an Energy Emergency Alert (EEA1), because operating reserves dropped below 2,300 MW and were not expected to recover within 30 minutes. Should reserves had continued to fall to below 1,750 MW, ERCOT would have issued an EEA2 whereby it could turn to industrial demand response to conserve energy. The highest-level alert, EEA3, is issued when reserves fall below 1,000 MW. In this scenario, ERCOT orders transmission companies to respond by reducing demand, usually by rotating outages.⁶⁰



⁵⁹ Projections from ERCOT's Capacity and Demand Report, December 2018. These reports typically show a declining trend in reserve margin since an interconnection request is usually not submitted more than five years before a facility is expected to enter commercial operations.

⁶⁰ (Walton, ERCOT reserves drop below 2,300 MW, forcing Texas grid to call for energy emergency 2019)

Virginia

Timeline of Electric Competition in Virginia⁶¹

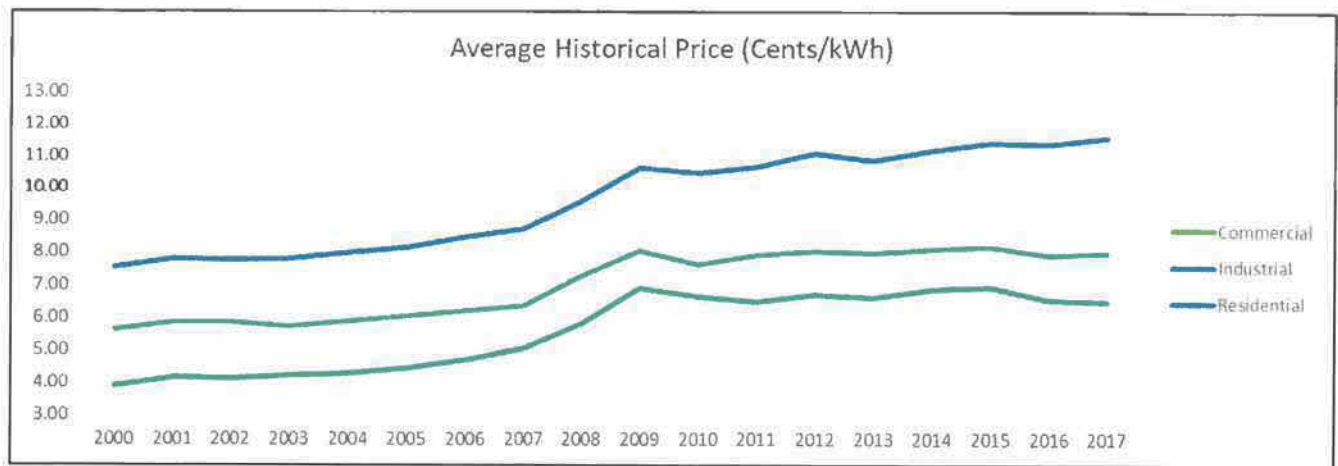
1996	<ul style="list-style-type: none">• SCC Staff Report on the Restructuring of the Electric Industry is published.
1997	<ul style="list-style-type: none">• The Draft Working Model for Restructuring the Electric Utility Industry is published by the SCC in November.
1999	<ul style="list-style-type: none">• Senate Bill 1269, the Virginia Electric Utility Restructuring Act, passes.• The SCC develops interim rules for retail access pilot programs.
2000	<ul style="list-style-type: none">• Project Current Choice is created as a pilot program for retail electric choice.
2007	<ul style="list-style-type: none">• Senate Bill and House Bill 3068 re-establishes retail rate regulation for most electricity customers in the Commonwealth.<ul style="list-style-type: none">○ Customers with annual demands > 5 MW retain the ability to shop.⁶²○ Customers seeking 100% renewable sources of energy also retain the ability to shop, but only if their local utility company has no equivalent tariff.
2009	<ul style="list-style-type: none">• On January 1, retail choice ends for most customers.

Historical Prices in Virginia (2000-2017)⁶³

⁶¹ (State Corporation Commission n.d.)

⁶² Five years' advance notice required for customers seeking to return to the incumbent utility. Smaller customers that aggregate to 5 MW could shop only with the approval of the SCC.

⁶³ (EIA n.d.)



The Rationale for Restructuring Electric Markets

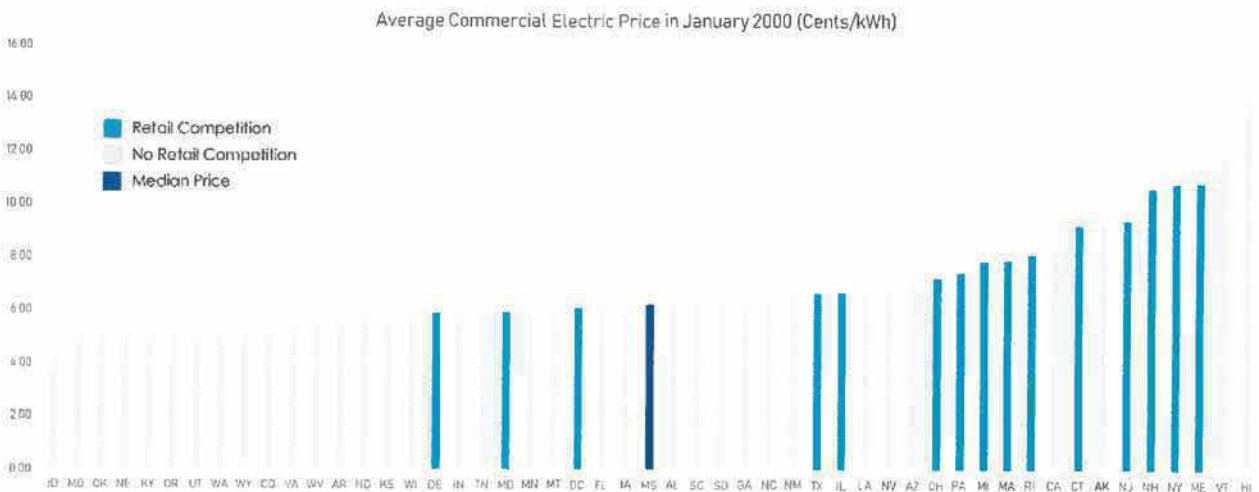
In a similar vein to arguments heard in other deregulated industries, proponents of retail electric restructuring suggested that opening generation markets to competition would:

- lead to cost savings, especially to large industrial customers
- reduce volatility in electricity costs for commercial customers through the use of fixed price contracts
- shift the risk of capital-intensive generation investments from utility ratepayers to shareholders of the generation company
- lead to more innovative products and services for customers
- offer more renewable energy options to customers
- provide better customer service

Most of the states that began investigating the benefits of retail competition in electric markets were those with considerably higher-than-average retail electric rates at the time, with possibly the exception of Texas and some Mid-Atlantic states.

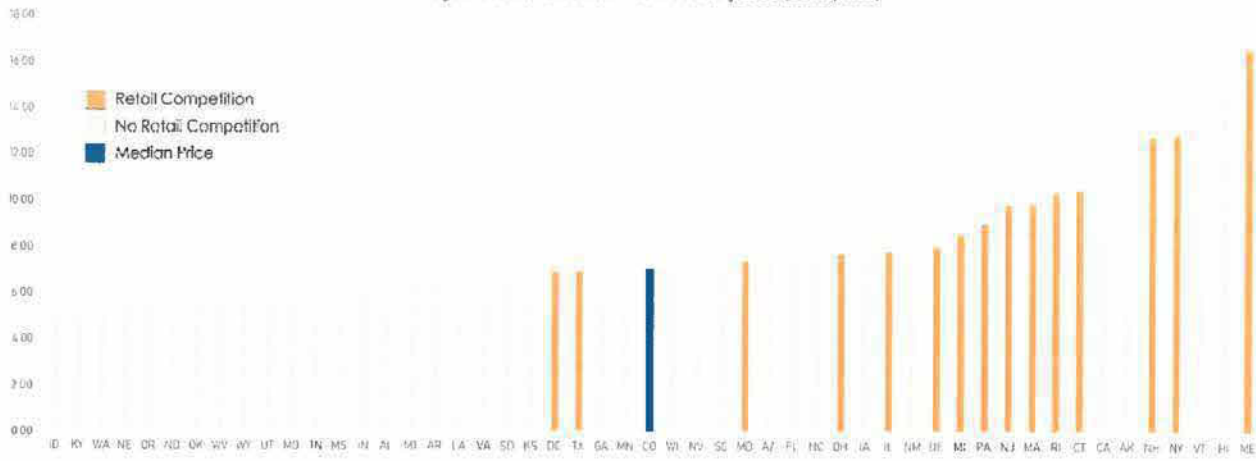
State Average Electric Rates (2000)

State Average Electric Rates, Lowest to Highest (January 2000)⁶⁴



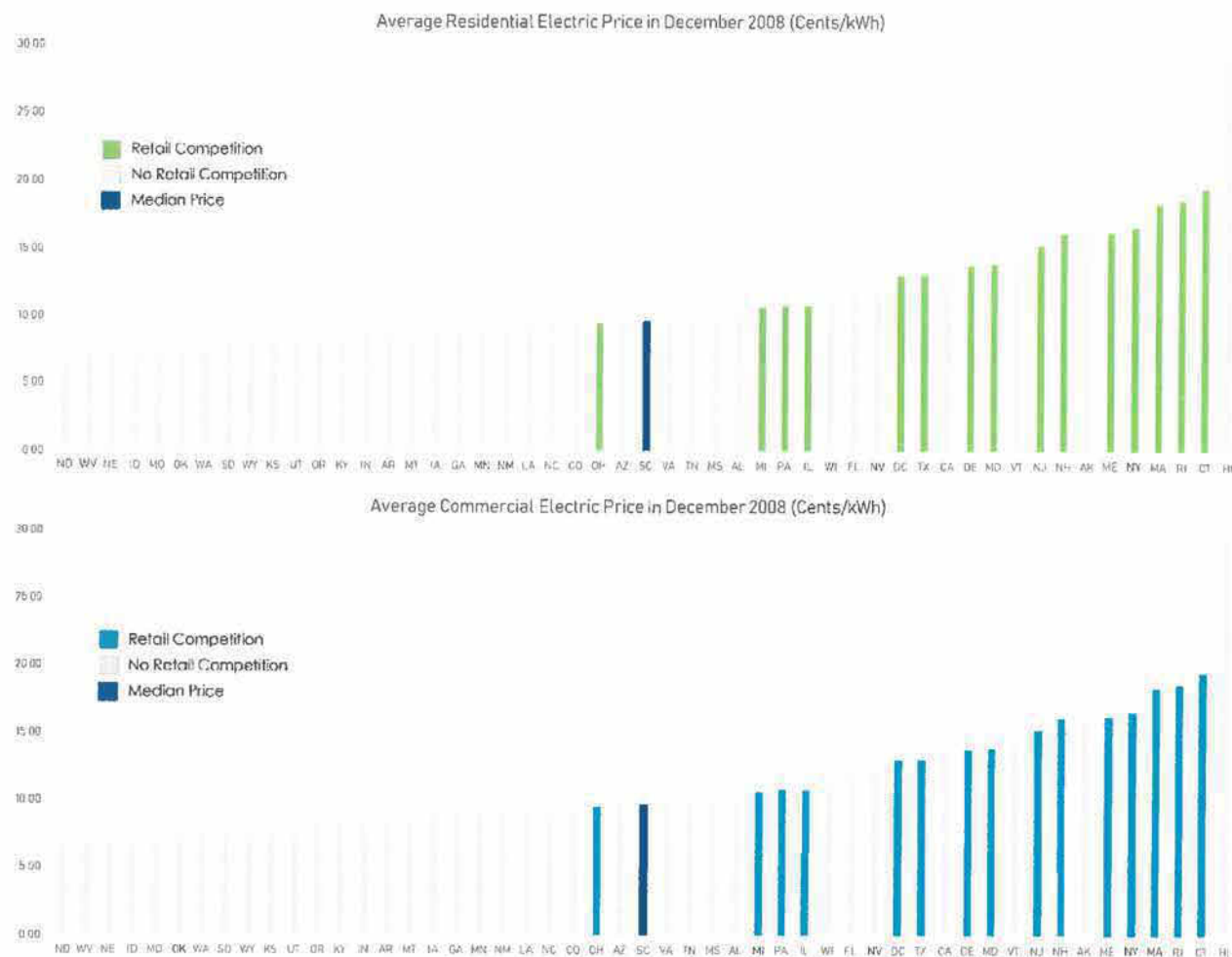
⁶⁴ (EIA n.d.)

Average Industrial Electric Price in January 2000 (Cents/kWh)



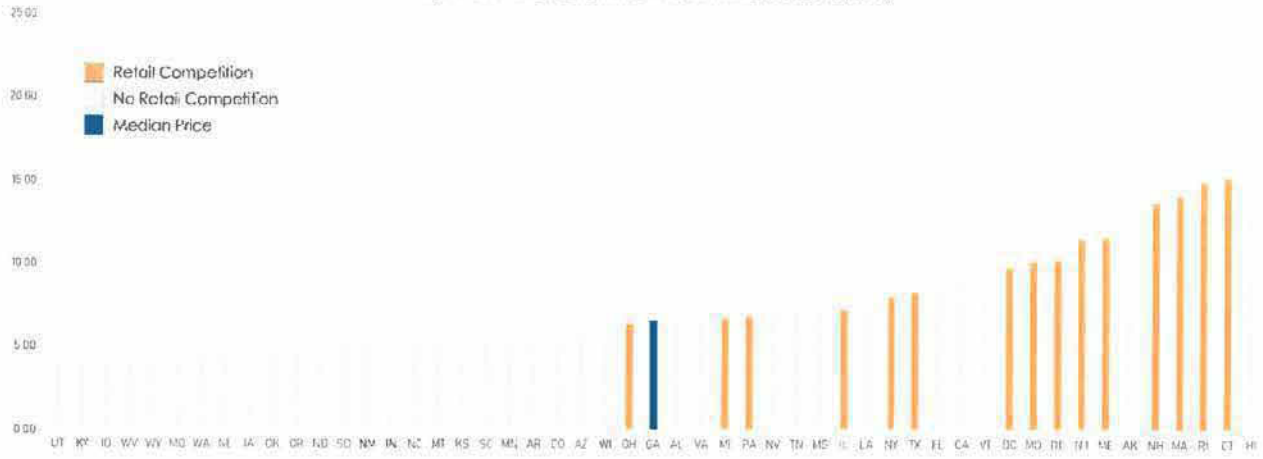
State Average Electric Rates (2008)

State Average Electric Rates, Lowest to Highest (December 2008)⁶⁵



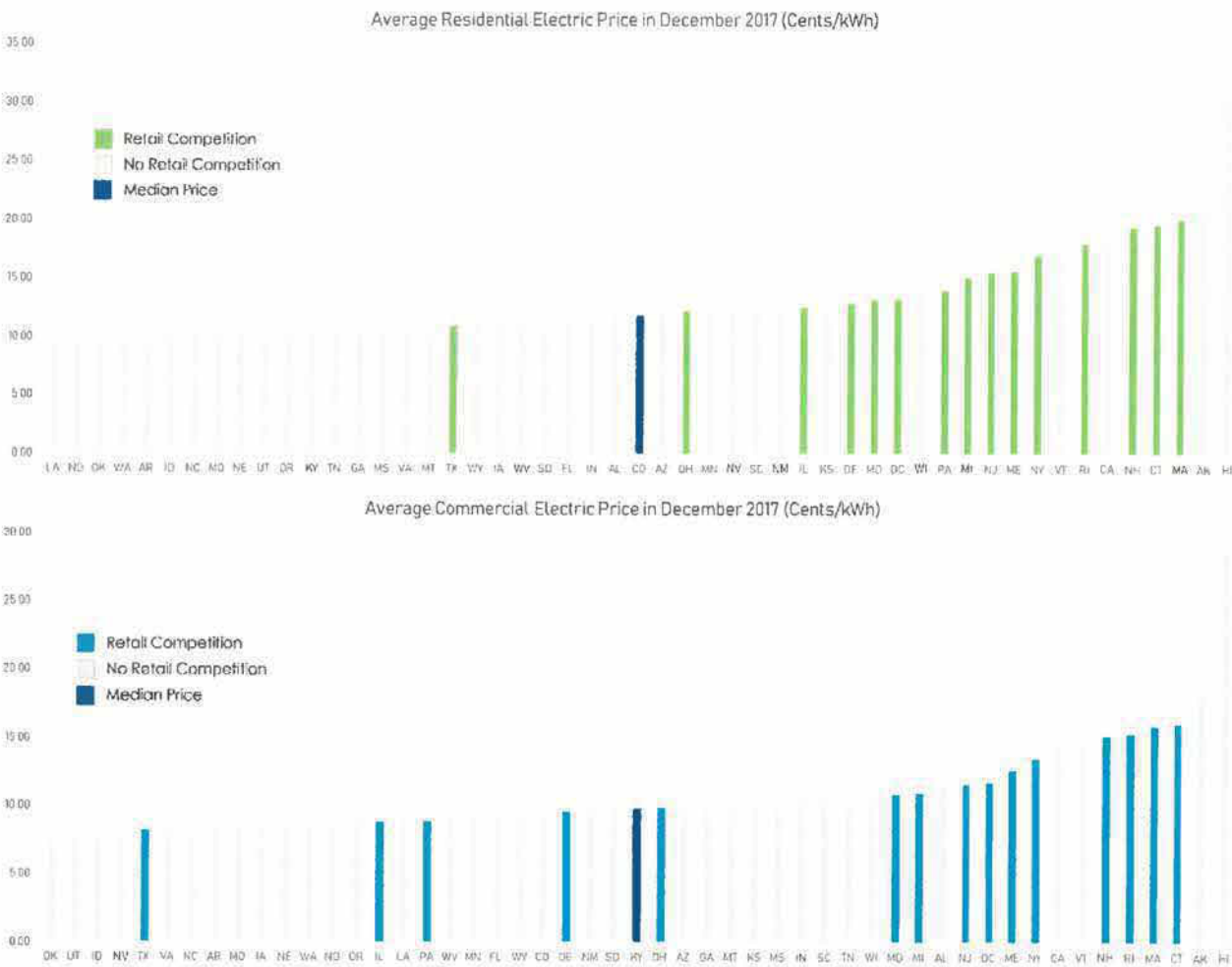
⁶⁵ (EIA n.d.)

Average Industrial Electric Price in December 2008 (Cents/kWh)

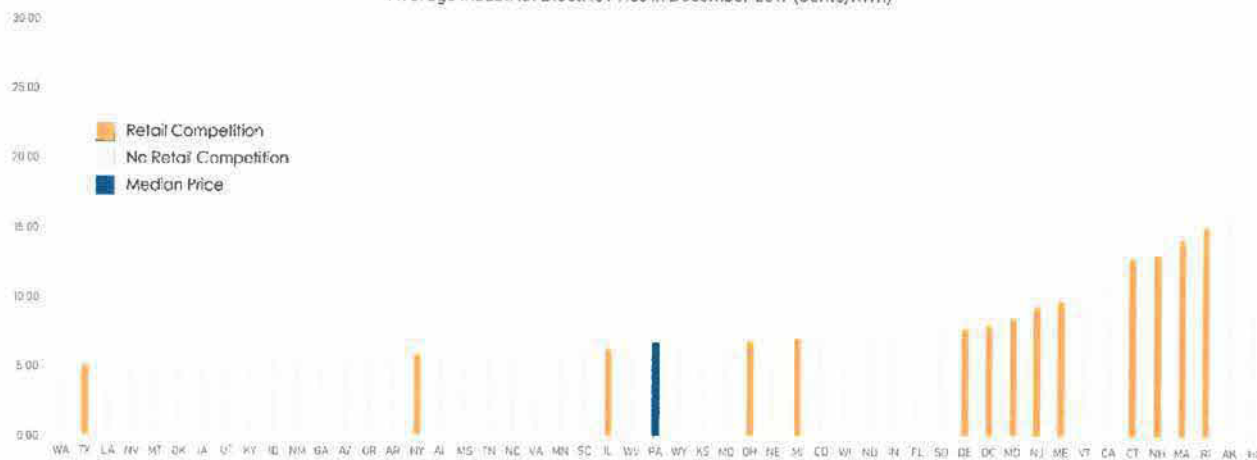


The Market Today (2017 -)

State Average Electric Rates, Lowest to Highest (December 2017)



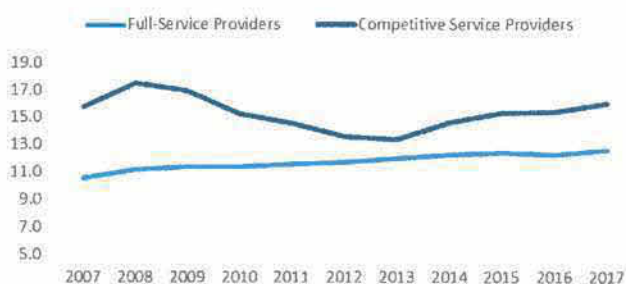
Average Industrial Electric Price in December 2017 (Cents/kWh)



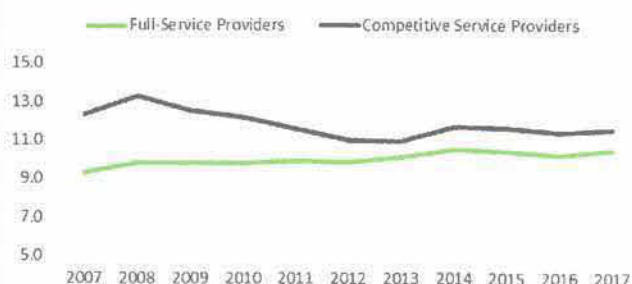
Price Comparison by Supplier (Nationwide)

In recent years, there has been a convergence in prices between full-service providers and competitive service providers. This convergence has not been uniform, however, as some consumer sectors have seen greater benefits, in terms of pricing, than others. This is unsurprising, given the difference in the costs of serving the three types of end users. Consumers may receive other benefits beyond lower prices (e.g. budget certainty), which could not be illustrated here.

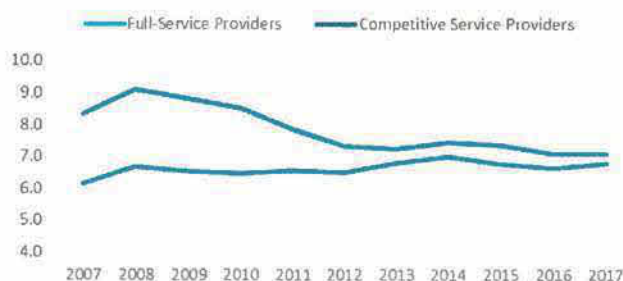
Residential Price Comparison (Cents/kWh)



Commercial Price Comparison (Cents/kWh)



Industrial Price Comparison (Cents/kWh)



Supply-Only Cost (Nationwide)

For the period 2007 to 2017, while the cost of energy has fallen, delivery charges have increased. As a result, delivery charges make up an increasing share of end consumers' total energy costs. For total energy costs to continue to decrease over time, energy-only costs will need to decrease in some measure greater than the cost of energy delivery increases. No research was conducted comparing the behavior of delivery costs within regulated service territories to those within deregulated service territories.

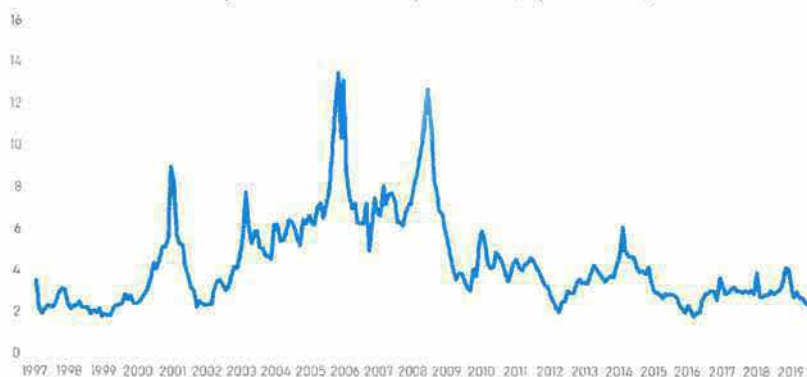


Natural Gas: The Marginal Fuel of Choice⁶⁶

When gas prices are low, they exert downward pressure on corresponding wholesale electricity prices. The chart below shows the spot prices for natural gas at Henry Hub. The shaded area represents an economic recession in the United States.

⁶⁶ (EIA n.d.)

Henry Hub Natural Gas Spot Prices (\$ per MMBtu)



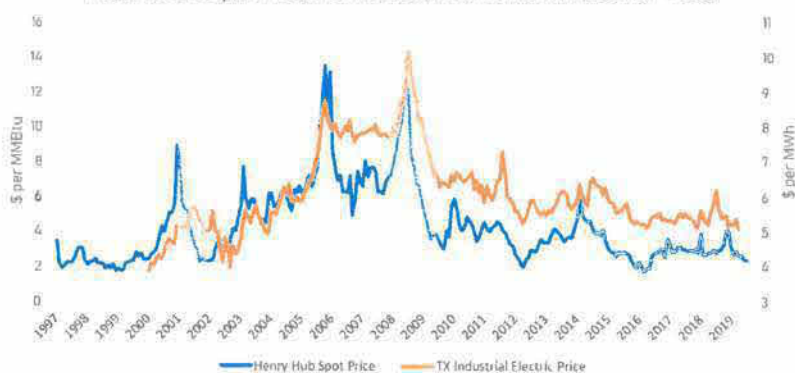
When Texas broke up its vertically-integrated utilities in 2002, private investment was heavily directed into the building of new generation, namely natural gas-fired power plants. The plants were cheaper—and less controversial—to build than nuclear plants, were more efficient than existing plants, and cleaner than coal plants. In the years just prior to deregulation, the discovery of large gas fields and the development of shale gas led to a large increase in natural gas supply and a corresponding drop in prices.

Prices did not remain low, however. In August 2005, Hurricane Katrina exposed weaknesses in natural gas markets while poor grid management led to congestion in Texas. Natural gas prices soared, and so did the state's electric rates. Natural gas prices—and retail electricity prices—peaked in August 2008.

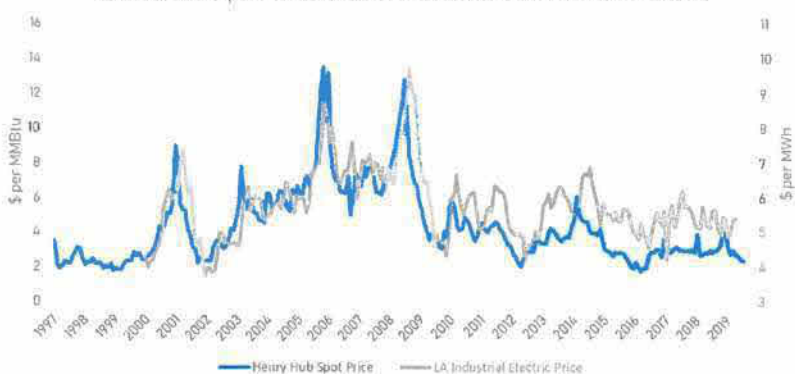
Since 2008, natural gas prices have fallen to historic lows, bringing electric rates down with them, as shown in the table above.

Perhaps no state benefitted more from low natural gas prices than Louisiana. Since 2008, it is the best-performing state, from a retail price perspective, and currently has the lowest retail electric prices in the country.

Natural Gas Spot Prices vs. Texas Industrial Retail Electric Prices



Natural Gas Spot Prices and Louisiana Industrial Electric Prices



Recent Events

Florida

Citizens for Energy Choice has collected more than 40% of the 766,200 signatures required to place an electric deregulation ballot measure on the 2020 ballot. The measure is supported by Infinite Energy, Inc., which supplies natural gas, but not electricity, in the state. A copy of the petition form is included in Appendix A.

The Florida Supreme Court heard oral arguments on August 28, 2019.

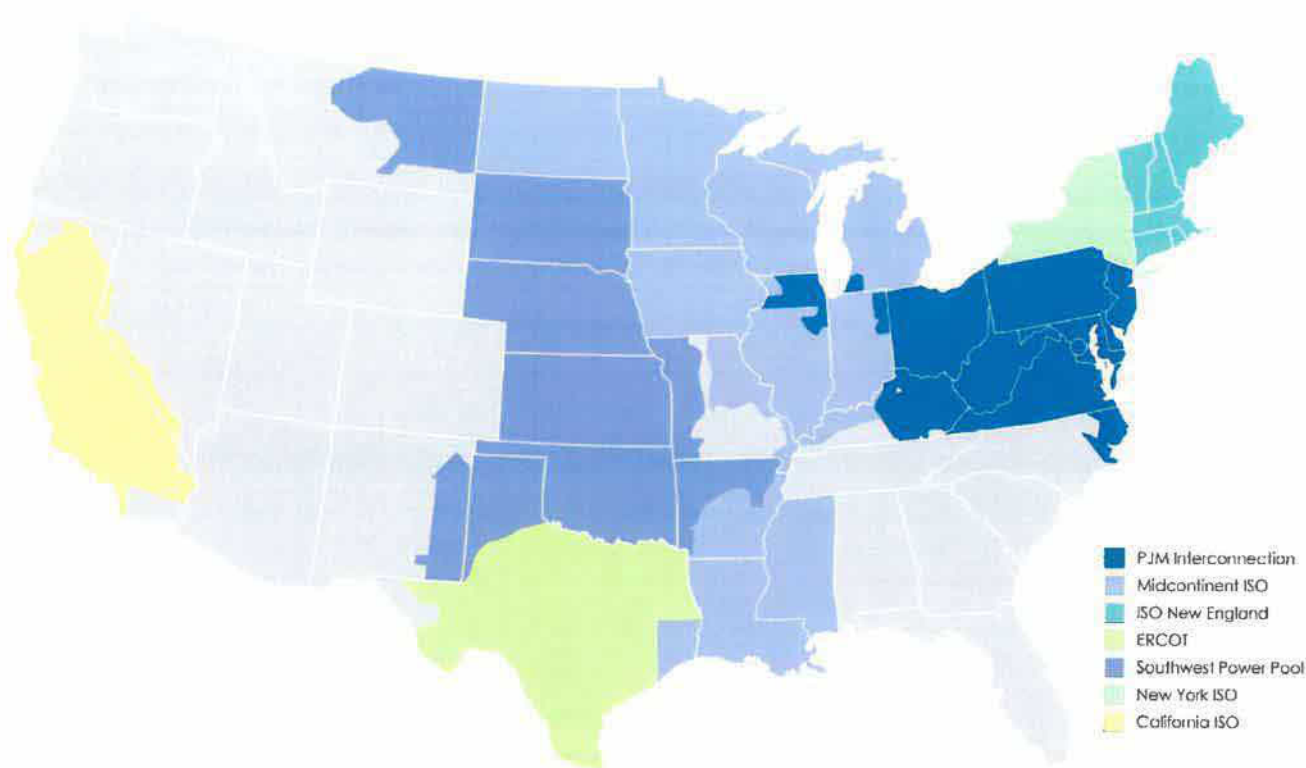
Virginia

Virginia restructured its electricity market in 1999, but reversed course in 2007. The Virginia Energy Reform Coalition (VERC) launched on May 7, 2019 and will be advocating for more consumer choice. The VERC's member organizations include the Virginia Poverty Law Center, Virginia Institute for Public Policy, and the Reason Foundation.

Nevada

The Energy Choice Initiative was defeated at the polls last November. The result was a drastic departure from 2016 when the measure received 72 percent of the vote. It needed to be approved for a second time last November for it to become law. The ballot measure was the most expensive contest in Nevada history. The Coalition to Defeat Question 3 raised \$63.6 million, with \$62.8 million coming from NV Energy. Nevadans for Affordable, Clean Energy Choices raised \$33.4 million in support of the measure, with \$21.9 million coming from Las Vegas Sands.

Transmission Organizations



The Role of an ISO/RTO

All the states that have restructured their electricity markets to provide full retail electric competition belong to either an Independent System Operator (ISO) or Regional Transmission Organization (RTO). These organizations were authorized by FERC in 1996 to “remedy undue discrimination in access to the monopoly-owned transmission wires that control whether and to whom electricity can be transported in interstate commerce,”⁶⁷ and perform the following functions:

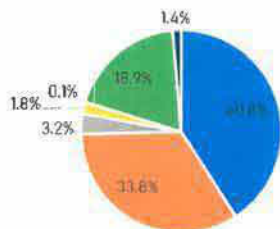
- Operate the bulk electric power system.
- Develop and administer the wholesale electric market.
- Oversee the power system planning process to address transmission needs.

While ISO/RTOs do not own the transmission infrastructure in their territory, they have operational control over the transmission system. Similarly, ISO/RTOs do not own the power plants that generate the power to be bought and sold in the market but decide which generators will run and at what levels, provide or deny the transmission services needed for the transactions to occur, and provide billing services for those transactions.

⁶⁷ FERC Order No. 888, April 24, 1996.

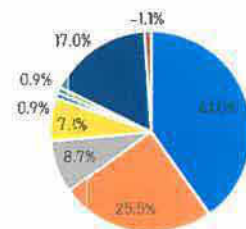
Resource Mix

PJM Generation Fuel Mix
(October 8, 2019 6:51pm EDT)



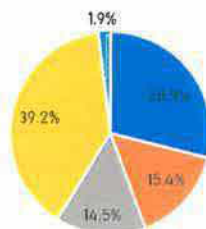
■ Natural Gas ■ Nuclear ■ Renewables ■ Hydro ■ Oil ■ Coal ■ Other

ISO-NE 2018 Resource Mix
(% of Net Energy Load)



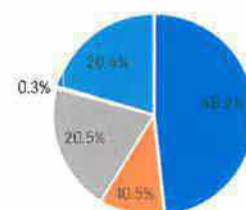
■ Natural Gas ■ Nuclear ■ Renewables ■ Hydro ■ Oil ■ Coal ■ External ■ Other

MISO Generation Fuel Mix
(October 8, 2019 7:10pm EDT)



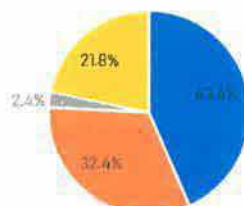
■ Natural Gas ■ Nuclear ■ Renewables ■ Coal ■ Other

ERCOT Generation Fuel Mix
(YTD, 2019)



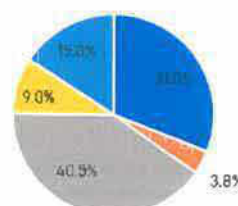
■ Natural Gas ■ Nuclear ■ Renewables ■ Hydro ■ Coal

New York ISO Generation Fuel Mix
(October 8, 2019 7:10pm EDT)



■ Natural Gas ■ Nuclear ■ Renewables ■ Hydro

CAISO Generation Fuel Mix
(October 8, 2019 4:30pm PDT)



■ Natural Gas ■ Nuclear ■ Renewables ■ Hydro ■ External



Reserve Markets

In addition to energy markets, most ISO/RTOs operate capacity markets. The existence—and function—of capacity markets differs from organization to organization.

PJM Capacity Market

On July 25, 2019 the Federal Energy Regulatory Commission (FERC) directed PJM Interconnection to postpone its capacity auction. This comes at a time when the RPM auction is phasing out its Base Capacity Resource product and requiring all resources to satisfy PJM's Capacity Performance effective with the 2020/2021 delivery year. During the 2018-2019 winter period, PJM saw that its "reserve market during stressed conditions showed that valuable energy reserves, while adequate during these periods, were not appropriately compensated in the market, which supports the movement for price reforms."⁶⁸

ISO-New England Forward Capacity Market

ISO-NE holds an annual Forward Capacity Market auction three years before each capacity commitment period. Capacity resources can include traditional generation, such as power plants, renewable generation, imports, and demand resources, such as energy efficiency measures and load management. Resources that clear in the auction receive monthly capacity payments in exchange for a commitment to provide power or curtail demand when asked by ISO-NE. Should a resource fail to meet this capacity commitment during a shortage event, a portion of its capacity payment must be refunded, with the refund going to resources that over-performed during the event.

Midcontinent ISO (MISO) Planning Resource Auction

MISO's capacity auction is relatively new—the first auction was held 2013—and differs from those held by ISO-NE and PJM. Unlike in those markets, the Planning Resource Auction is not forward looking; capacity for the Summer planning period is procured in April of the same year. Participants bid for zonal resource credits (ZRCs) that are equivalent to one MW of capacity and require a one-year obligation. The bids are cleared through a single, sealed bid clearing price auction.

Prior to the current construct, the capacity market was voluntary with artificially low capacity prices and no incentives for localization. The incentives for localization can be seen in past auction results⁶⁹:

Planning Year	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8	Zone 9	Zone 10
2014-2015	\$3.29			\$16.75				\$16.44		--
2015-2016		\$3.48		\$150.00		\$3.48		\$3.29		--
2016-2017	\$19.72			\$72.00					\$2.99	
2017-2018					\$1.50					
2018-2019	\$1.00					\$10.00				

⁶⁸ (PJM 2019)

⁶⁹ 2019/2020 MISO Planning Resource Auction results. External Resource Zones' results not shown.

Electric Reliability Council of Texas (ERCOT)/Southwest Power Pool

These are the only two wholesale electricity markets in the United States without a capacity market. Commissioner Donna Nelson of the Public Utilities Commission of Texas defended the energy-only model at the 2017 Energy Thought Summit in Austin.⁷⁰

Unfortunately, just as reserves aren't valued appropriately in PJM's market, the same appears to be happening within ERCOT. The planning reserve margin was at a historically low 8.6% entering this summer and had been forecasted at an all-time low (7.3%) in March.⁷¹

"If you could design a wholesale market that wasn't influenced by outside factors, obviously you wouldn't have the kind of issues we've been dealing with, but you do have those environmental policies like the production tax credit."

*Donna Nelson
Commissioner, PUCT*

ERCOT's Seasonal Assessment of Resource Adequacy (Summer 2019)

Total Resources (MW)	Peak Demand (MW)	Reserve Capacity (MW)
78,929	74,853	78,929 – 74,853 = 4,076

⁷⁰ (Bade 2017)

⁷¹ (Electric Reliability Council of Texas 2019)

Regulatory Actions

Shopping for Electricity

Each of the fully competitive states have created a website devoted to assist customers in choosing a retail electric supplier and/or provide a fair representation of the offers available in the customer's territory. Consumers can be sure that the supplier is fully licensed in the state and that the offers are valid. In many states, failure to honor the listed fixed price offer may result in a supplier's information being removed from the website. Most require enrollment fees, early termination fees, contract term, introductory price and term, and other pertinent information to be clearly stated. Others require a full sample contract or provide a rating system, determined by the number of complaints received by the regulator against the supplier.

State	Organization	Website
California	--	--
Connecticut	Energize Connecticut	energizect.com/compare-energy-suppliers
District of Columbia	Public Service Commission of DC	depsec.org/Consumers-Corner/Utility-Bills-Complaints-and-Service-Providers/Compare-Supplier-Offers.aspx
Delaware	Delaware Public Service Commission	depsec.delaware.gov
Georgia	Georgia Public Service Commission	psc.ga.gov/utilities/electric/
Illinois	Illinois Commerce Commission	pluginillinois.org
Maine	Maine Office of the Public Advocate	maine.gov/meopa/electricity/electricity-supply/
Maryland	Maryland Public Service Commission	psc.state.md.us/electricchoice/shop-and-compare/
Massachusetts	MA Department of Public Utilities	energyswitchma.gov
Michigan	Michigan Public Service Commission	michigan.gov/mpsc/
New Hampshire	Public Utility Commission of NH	puc.nh.gov/ceps/shop.aspx
New Jersey	State of New Jersey	nj.gov/njpowerswitch/
New York	New York State	documents.dps.ny.gov/PTC/home
Ohio	Public Utility Commission of Ohio	energychoice.ohio.gov
Oregon	--	--
Pennsylvania	PA Public Utility Commission	papowerswitch.com

State	Organization	Website
Rhode Island	Division of Public Utilities and Carriers	ri.gov/app/dpuc/empowerri
Texas	Public Utility Commission of Texas	powertochoose.org
Virginia	--	--
Washington	--	--

Notable Penalties, Fines, and Settlements

Date	State	Company	Penalty	Violation
5/17/2012	New York	Columbia Utilities	\$2,000,000 settlement	Marketers falsely promised savings. ⁷²
3/7/2014	Maryland	Starion Energy	\$350,000 fine	Violations of State law and regulations. ⁷³
5/22/2014	Connecticut	Energy Plus	\$4,500,000 settlement	Leading consumers to believe they would benefit from a rewards program if they enrolled and failing to deliver on its promises of lower electric rates. ⁷⁴
1/6/2015	Massachusetts	Spark Energy	\$4,000,000 settlement	Deceptive sales marketing practices and customer overcharges. ⁷⁵
10/23/2015	Maryland	Major Energy Services	\$300,000 fine	Violation of Commission regulations. ⁷⁶
7/7/2015	New York	HIKO Energy	\$1,000,000 settlement	Slamming, making it difficult for customers to cancel enrollments in a timely manner, and deceptive business practices. ⁷⁷

⁷² (New York Attorney General's Press Office 2012)

⁷³ (Public Service Commission of Maryland 2018)

⁷⁴ (Turnelle 2014)

⁷⁵ (Bosco April 2018)

⁷⁶ (Public Service Commission of Maryland 2018)

⁷⁷ (New York Attorney General's Press Office 2015)

Date	State	Company	Penalty	Violation
12/3/2015	Pennsylvania	HIKO Energy	\$1,800,000 fine and \$2,025,384 in refunds	Billing 14,689 customers rates in excess of their guaranteed rate. ⁷⁸
5/13/2016	Maryland	Blue Pilot Energy	\$140,000 fine	Violation of the Maryland law. ⁷⁹
6/23/2016	New Jersey	Palmco Energy	\$5,280,000 settlement	Violations of the Consumer Fraud Act and Electric Discount and Energy Competition Act, as well as slamming. ⁸⁰
6/30/2016	Pennsylvania	IDT Energy	\$6,752,000 settlement	Failing to provide accurate pricing information, slamming, charging prices inconsistent with customer disclosure statements, mishandling customer complaints, and failing to comply with Pennsylvania's Telemarketer Registration Act. ⁸¹
7/7/2016	Pennsylvania	Blue Pilot Energy	\$2,400,000 in refunds	Multiple violations of state law. ⁸²
8/8/2016	Illinois	Ethical Electric Inc.	\$3,000,000 (approx.) in refunds	Misleading consumers about the source of green energy provided through its Clean Energy Option. ⁸³
8/11/2016	Pennsylvania	Respond Power, LLC	\$5,300,000 settlement	Engaging in deceptive and misleading practices during the 2014 polar vortex. ⁸⁴
11/3/2016	Ohio	Just Energy	\$125,000 penalty	Using deceptive practices to enroll customers. ⁸⁵

⁷⁸ (Commonwealth of Pennsylvania v. HIKO Energy, LLC 2015)

⁷⁹ (Public Service Commission of Maryland 2018)

⁸⁰ (State of New Jersey, Office of the Attorney General 2016)

⁸¹ (Pennsylvania Public Utility Commission 2016)

⁸² (Commonwealth of Pennsylvania v. Blue Pilot Energy, LLC 2016)

⁸³ (Illinois Attorney General 2016)

⁸⁴ (Maykuth 2016)

⁸⁵ (Gearino 2016)

Date	State	Company	Penalty	Violation
8/16/2017	Connecticut	Palinco Energy	\$5,000,000 settlement	Impersonating utility employees, employing abusive sales tactics, slamming, and providing false and misleading information about the company's rates. The company was ordered to relinquish its electric supplier license for five years. ⁸⁶
8/30/2017	New York	Energy Plus	\$800,000 settlement	Failure to disclose material terms, deceptive business practices, and failure to disclose that cancellations could take months to process and could result in early termination fees. ⁸⁷
11/13/2017	Connecticut (Class Action)	Starion Energy	\$2,580,000 settlement	Charging high variable rates for the supply of electricity that were not linked to the market rate for electricity. ⁸⁸
3/21/2018	Connecticut	Spark Energy	\$900,000 fine	Failing to adhere to state laws requiring that consumers receive timely and accurate billing information. ⁸⁹
3/27/2018	Massachusetts	Viridian Energy	\$5,000,000 settlement	Deceptive marketing and sales tactics that resulted in consumers being overcharged. The company received a two-year ban from door-to-door marketing. ⁹⁰
4/11/2018	New York	Liberty Power	\$550,000 settlement	Marketers falsely promised savings and charged customers early termination fees when they tried to get out of their contracts; claiming to represent a consumer's current utility provider; and slamming. ⁹¹

⁸⁶ PURA Docket No. 10-01-24RE01

⁸⁷ (New York Attorney General's Press Office 2017)

⁸⁸ (Gruber v. Starion Energy, Inc. 2017)

⁸⁹ (Pilon, Electricity supplier fined \$900K for inaccurate bills 2018)

⁹⁰ (Conti 2018)

⁹¹ (NBC New York 2018)

Date	State	Company	Penalty	Violation
6/13/2018	Connecticut	Choice Energy	\$250,000 fine	Discontinuing its contractual savings guarantee with 16,069 customers. ⁹²
6/27/2018	New York (Class Action)	Ambit Energy	\$26,500,000 settlement	Overcharging customers by rolling them off a guaranteed savings plan and onto a variable plan without proper authorization. ⁹³
8/3/2018	Connecticut (Class Action)	North American Power & Gas	\$16,000,000 settlement	Charging rates not based on market-related factors or prevailing market rates as promised in its contracts to consumers. ⁹⁴
8/16/2018	Pennsylvania (Class Action)	Ambit Energy	\$9,300,000 settlement	Breaching their contract and the covenant of good faith by using non-disclosed factors to increase its energy prices. ⁹⁵
9/5/2018	Connecticut	Spark Energy	\$750,000 fine	Violations of several state statutes related to marketing and solicitations by third-party energy suppliers. ⁹⁶
9/20/2018	Connecticut	Liberty Power	\$1,500,000 fine	Using deceptive or misleading sales tactics, issuing more than 26,000 contract containing termination fees double the legal limit, and slamming. ⁹⁷
10/15/2018	Illinois	Sperian Energy	\$2,650,000 settlement	Deceptive marketing and overcharging. The company received a 2-year marketing ban. ⁹⁸

⁹² PURA Docket No. 14-07-15

⁹³ (Simmons, et al. v. Ambit Energy Holdings LLC, et al. 2016)

⁹⁴ (Edwards v. North American Power & Gas LLC 2018)

⁹⁵ (Thomas 2018)

⁹⁶ (Pilon, Spark Energy hit with second fine 2018)

⁹⁷ (Pilon 2018)

⁹⁸ (Daniels 2018)

Date	State	Company	Penalty	Violation
11/19/2018	Illinois	IDT Energy	\$3,000,000 settlement	Deceptive marketing and fraud. The company received a 2-year marketing ban. ⁹⁹
12/2018	New York	Ambit	\$1,500,000 penalty	Slamming, switching customers to more expensive plans without adequate notice, misrepresented savings, and promised marketers incomes that were not generally achieved. ¹⁰⁰
12/7/2018	Texas	Multiple TDUs	\$240,200 fine	Electric utility service quality settlements. ¹⁰¹
12/7/2018	Texas	Reliant Energy Retail	\$100,000 fine	Failing to timely transmit bills to 1,714 customers and improperly billing 47,930 customers exclusively through e-billing. ¹⁰²
12/7/2018	Texas	Luminant Energy Company	\$1,100,000 fine	The company provided ERCOT with false telemetry data. ¹⁰³
2/27/2019	Connecticut	Direct Energy	\$1,500,000	Engaging in unfair and deceptive business practices. ¹⁰⁴
8/2/2019	Maryland	Smart One Energy	\$561,000	Signing customers up for contracts to sell them natural gas without their consent. ¹⁰⁵
Pending	Illinois	Major Energy	Seeking \$2,500,000	Deceptive sales pitches. ¹⁰⁶
Pending	Massachusetts	Starion Energy	Seeking \$30,000,000	Unfair and deceptive marketing practices.

⁹⁹ (Daniels, High-priced power supplier to low-income households agrees to marketing ban 2018)

¹⁰⁰ (New York Attorney General's Press Office 2019)

¹⁰¹ PUCT Docket Nos. 48573, 48628, 48642, 48674, 48772, and 48774

¹⁰² PUCT Docket No. 48773

¹⁰³ PUCT Docket No. 48607

¹⁰⁴ (Singer 2019)

¹⁰⁵ (Dance 2019)

¹⁰⁶ (Illinois Attorney General 2018)

Date	State	Company	Penalty	Violation
Pending	Maine	Electricity Maine	Seeking \$1,000,000	Violations within the company's door-to-door marketing campaign. ¹⁰⁷
Pending	Maine (Class Action)	Electricity Maine	Pursuing settlement ¹⁰⁸	

¹⁰⁷ (Valigra 2019)

¹⁰⁸ (Veilleux v. Electricity Maine, LLC 2019)

Appendix A

CONSTITUTIONAL AMENDMENT PETITION FORM

Note:

- All information on this form, including your signature, becomes a public record upon receipt by the Supervisor of Elections.
- Under Florida law, it is a first degree misdemeanor, punishable as provided in s. 775.082 or s. 775.08, Florida Statutes, to knowingly sign more than one petition for an issue. [Section 104.185, Florida Statutes]
- If all requested information on this form is not completed, the form will not be valid.

Your name: _____
Please Print Name as it appears on your Voter Information Card

Your address: _____

City _____ Zip _____ County _____

☐ Please change my legal residence address on my voter registration record to the above residence address (check box, if applicable).

Voter Registration Number _____ or Date of Birth _____

I am a registered voter of Florida and hereby petition the Secretary of State to place the following proposed amendment to the Florida Constitution on the ballot in the general election:

BALLOT TITLE: Right to Competitive Energy Market for Customers of Investor-Owned Utilities; Allowing Energy Choice.

BALLOT SUMMARY: Grants customers of investor-owned utilities the right to choose their electricity provider and to generate and sell electricity. Requires the Legislature to adopt laws providing for competitive wholesale and retail markets for electricity generation and supply, and consumer protections, by June 1, 2025, and repeals inconsistent statutes, regulations, and orders. Limits investor-owned utilities to construction, operation, and repair of electrical transmission and distribution systems. Municipal and cooperative utilities may opt into competitive markets.

ARTICLE AND SECTION BEING CREATED OR AMENDED: Article X, new section

FULL TEXT OF THE PROPOSED CONSTITUTIONAL AMENDMENT:

(a) POLICY DECLARATION. It is the policy of the State of Florida that its wholesale and retail electricity markets be fully competitive so that electricity customers are afforded meaningful choices among a wide variety of competing electricity providers.

(b) RIGHTS OF ELECTRICITY CUSTOMERS. Effective upon the dates and subject to the conditions and exceptions set forth in subsections (c), (d), and (e), every person or entity that receives electricity service from an investor-owned electric utility (referred to in this section as "electricity customers") has the right to choose their electricity provider, including, but not limited to, selecting from multiple providers in competitive wholesale and retail electricity markets, or by producing electricity themselves or in association with others, and shall not be forced to purchase electricity from one provider. Except as specifically provided for below, nothing in this section shall be construed to limit the right of electricity customers to buy, sell, trade, or dispose of electricity.

[TEXT CONTINUES ON OTHER SIDE]

[TEXT BEGINS ON OTHER SIDE]

(c) IMPLEMENTATION. By June 1, 2023, the Legislature shall adopt complete and comprehensive legislation to implement this section in a manner fully consistent with its broad purposes and stated terms, which shall take effect no later than June 1, 2025, and which shall:

(1) implement language that entitles electricity customers to purchase competitively priced electricity, including but not limited to provisions that are designed to (i) limit the activity of investor-owned electric utilities to the construction, operation, and repair of electrical transmission and distribution systems, (ii) promote competition in the generation and retail sale of electricity through various means, including the limitation of market power, (iii) protect against unwarranted service disconnections, unauthorized changes in electric service, and deceptive or unfair practices, (iv) prohibit any granting of either monopolies or exclusive franchises for the generation and sale of electricity, and (v) establish an independent market monitor to ensure the competitiveness of the wholesale and retail electric markets.

(2) Upon enactment of any law by the Legislature pursuant to this section, all statutes, regulations, or orders which conflict with this section shall be void.

(d) EXCEPTIONS. Nothing in this section shall be construed to affect the existing rights or duties of electric cooperatives, municipally-owned electric utilities, or their customers and owners in any way, except that electric cooperatives and municipally-owned electric utilities may freely participate in the competitive wholesale electricity market and may choose, at their discretion, to participate in the competitive retail electricity market. Nothing in this section shall be construed to invalidate this State's public policies on renewable energy, energy efficiency, and environmental protection, or to limit the Legislature's ability to impose such policies on participants in competitive electricity markets. Nothing in this section shall be construed to limit or expand the existing authority of this State or any of its political subdivisions to levy and collect taxes, assessments, charges, or fees related to electricity service.

(e) EXECUTION. If the Legislature does not adopt complete and comprehensive legislation to implement this section in a manner fully consistent with its broad purposes and stated terms by June 1, 2023, then any Florida citizen shall have standing to seek judicial relief to compel the Legislature to comply with its constitutional duty to enact such legislation under this section.

DATE OF SIGNATURE _____

SIGNATURE OF REGISTERED VOTER _____

Initiative petition sponsored by Citizens for Energy Choices, PO Box 1101, Alachua, FL 32616

If paid petition circulator is used:

Circulator's name _____

Circulator's address _____

For Official Use Only:

Serial Number: 18-10

Date Approved: 10/5/2018

Appendix B

Release Date: May 8, 2019

FINAL

**Seasonal Assessment of Resource Adequacy for the ERCOT Region (SARA)
Summer 2019**

SUMMARY

In all of the scenarios studied for the final summer SARA, ERCOT identified a potential need to enter Energy Emergency Alert (EEA) status in order to maintain system reliability. The final summer SARA report includes a forecasted peak demand of 74,853 MW, which is 1,300 MW higher than the all-time peak demand record set last summer on July 19.

“ERCOT is prepared to use the tools and procedures that are in place to maintain system reliability during tight conditions,” said ERCOT President and CEO Bill Magness.

While operating reserves are expected to remain tight, total generation resource capacity has increased to 78,929 MW compared to the preliminary summer SARA released in March. This is due primarily to the expected return of a 365 MW gas-fired unit, increased output from certain units that

Seasonal Assessment of Resource Adequacy for the ERCOT Region
Summer 2019 - Final
Release Date: May 8, 2019

Forecasted Capacity and Demand

Operational Resources (thermal and hydro), MW	65,207	Based on current Seasonal Maximum Sustainable Limits reported through the unit registration process
Switchable Capacity Total, MW	3,614	Installed capacity of units that can interconnect with other Regions and are available to ERCOT
Less Switchable Capacity Unavailable to ERCOT, MW	(788)	Based on survey responses of Switchable Resource owners
Available Mottiball Capacity, MW	118	Based on seasonal Mottiball units plus Probability of Return responses of Mottiball Resource owners
Capacity from Private Use Networks, MW	3,437	Average capability of the top 20 hours in the summer peak seasons for the past three years (2016-2018)
Non-Coastal Wind, Peak Average Capacity Contribution, MW	2,884	Based on 15% of installed capacity for non-coastal wind resources (summer season) per ERCOT Nodal Protocols Section 3.2.6.2.2
Coastal Wind, Peak Average Capacity Contribution, MW	1,636	Based on 58% of installed capacity for coastal wind resources (summer season) per ERCOT Nodal Protocols Section 3.2.6.2.2
Solar Utility-Scale, Peak Average Capacity Contribution, MW	1,377	Based on 74% of rated capacity for solar resources (summer season) per Nodal Protocols Section 3.2.6.2.2
Storage, Peak Average Capacity Contribution, MW	-	Based on 0% of rated capacity, resources assumed to provide regulation reserves rather than sustained capacity available to meet peak load
RMR Resources to be under Contract, MW	-	
Capacity Pending Retirement, MW	-	Announced retired capacity that is undergoing ERCOT grid reliability reviews pursuant to Nodal Protocol Section 3.14.1.2
Non-Synchronous Ties, Capacity Contribution, MW	938	Based on import flows during most recent Energy Emergency Alert (EEA) intervals for the summer season (75% of installed capacity)
Planned Thermal Resources with Signed IA, Air Permits and Water Rights, MW	201	Based on in-service dates provided by developers of generation resources
Planned Non-Coastal Wind with Signed IA, Peak Average Capacity Contribution, MW	153	Based on in-service dates provided by developers and 15% summer capacity contribution for non-coastal wind resources
Planned Coastal Wind with Signed IA, Peak Average Capacity Contribution, MW	226	Based on in-service dates provided by developers and 58% summer capacity contribution for coastal wind resources
Planned Solar Utility-Scale, Peak Average Capacity Contribution, MW	28	Based on in-service dates provided by developers and a summer capacity contribution of 74% for solar resources
Planned Storage, Peak Average Capacity Contribution, MW	-	Based on in-service dates provided by developers and a summer capacity contribution of 0% for storage resources
[a] Total Resources, MW	78,929	
[b] Peak Demand, MW	74,853	Based on average weather conditions at the time of the summer peak for 2003-2017
[c] Reserve Capacity [a - b], MW	4,076	

Range of Potential Risks

	Forecasted Season Peak Load / Typical Generation Outages	Forecasted Season Peak Load / Extreme Generation Outages	Forecasted Season Peak Load / Extreme Low Wind Output	Extreme Season Peak Load / Typical Generation Outages	
Seasonal Load Adjustment	-	-	-	3,303	Based on summer 2014 weather conditions
Typical Maintenance Outages	381	381	381	381	Based on the historical average of maintenance outages for weekday peak hours for June through September, for the last three summer seasons (2016 - 2018)
Typical Forced Outages, Thermal	3,645	3,845	3,845	3,845	Based on the historical average of forced outages for weekday peak hours for June through September, for the last three summer seasons (2016 - 2018)
90th Percentile Forced Outages, Thermal	-	2,685	-	-	Based on historical forced outages assuming a 90% confidence interval
Low Wind Output Adjustment	-	-	3,938	-	Based on the 10th percentile of wind output associated with the 100 highest Net Load hours (Load minus wind output) for the 2015-2019 summer Peak Load seasons; this wind output level is 900 MW.
[d] Total Uses of Reserve Capacity	4,226	6,891	5,164	7,529	
[e] Capacity Available for Operating Reserves, Normal Operating Conditions [c - d], MW	(150)	(2,815)	(4,088)	(3,453)	See the Background tab for additional details
Less than 2,300 MW indicates risk of EEA1					

Terms and Abbreviations

ABC	Agents, Brokers, and Consultants. A significant portion of retail customers that switch to a competitive supplier use an intermediary to assist them with the analysis of competing electric supply offers. These third-party agents, brokers, and consultants are typically not paid directly by the consumer or supplier but receive a commission in the form of a volumetric rate built into the contract price.
AEP	American Electric Power is a utility in Ohio.
AES	Alternative Electric Supplier
BG&E	Baltimore Gas and Electric is a utility that serves the Baltimore, Maryland area.
CAISO	California Independent System Operator
Capacity	The maximum electric output electric generators can produce under specific conditions.
CCA	Community Choice Aggregation. See: municipal aggregation.
ComEd	Commonwealth Edison is a distribution company in Illinois and primarily serves the Chicagoland territory. It is owned by Exelon.
CTC	Competitive Transition Charge
EEA	Energy Emergency Alerts are issued by ERCOT when operating reserves drop below 2,300 MW for EEA1 (1,750 MW for EEA2 or 1,000 MW for EEA3) and are not expected to recover within 30 minutes.
EIA	Energy Information Administration collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment.
ERCOT	Electric Reliability Council of Texas is the first independent system operator in the United States managing the flow of electric power on the Texas Interconnection.
HB	House Bill
Henry Hub	A natural gas pipeline located in Erath, Louisiana, that serves as the official delivery location for futures contracts on the New York Mercantile Exchange (NYMEX).
IOU	Investor-Owned Utility

ISO	Independent System Operator
ISO-NE	The independent system operator in New England.
LD	Legislative Document
LDC	Local Distribution Company
LMP	Locational-Marginal Pricing
MISO	Midwest Independent System Operator
Municipal Aggregation	The method by which municipalities can purchase electric supply options on behalf of the consumers within their borders.
PEPCO	Potomac Electric Power Company serves the area in and around Washington, DC. It is owned by Exelon.
PJM	PJM Interconnection LLC. Formerly Pennsylvania-New Jersey-Maryland Interconnection. PJM is a regional transmission organization that is part of the Eastern Interconnection grid.
PLC	Peak Load Contribution
POLR	Provider of Last Resort
POR	Purchase of Receivables
Price-to-Beat	A price floor used by Texas regulators to prevent incumbent utilities from offering artificially low rates and limiting competition from new market participants.
PSC	Public Service Commission
PUCO	Public Utility Commission of Ohio
PUCT	Public Utility Commission of Texas
PURA	Public Utilities Regulatory Authority (Connecticut)
Rescission Period	The period (usually 3 days) during which consumers may cancel a contract with a competitive supplier without penalty.
REP	Retail Electric Provider
RES	Retail Electric Supplier
Reserve Margin	The amount of anticipated resources relative to net internal electricity demand. A reserve margin of 12% means that 12% of a region's electric generating capacity would be available as a buffer to supply its peak hourly load.
RPS	Renewable Portfolio Standard

RTO	Regional Transmission Organization
SB	Senate Bill
SCC	State Corporation Commission (Virginia)
Slamming	The unauthorized switching of a customer account from their current retail electric supplier to another retail electric supplier.
SOS	Standard Offer Service
SPP	Southwest Power Pool
Stranded Cost	The difference between a utility's net book value and market value of asset in a restructured market.
TDU	Transmission and Distribution Utilities (Texas).
Teaser Rate	An introductory rate for electric supply that is only available to new customers and for a limited time.
Vertically-Integrated Utility	A utility that owns generation, transmission, and distribution assets in a single territory.

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